United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
United States Department
of Agriculture, Forest
Service; United States
Department of the
Interior, Bureau of Land
Management; and
Oregon State University,
Agricultural Experiment
Station

Soil Survey of Lake County, Oregon, Northern Part, Parts of Lake and Klamath Counties

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

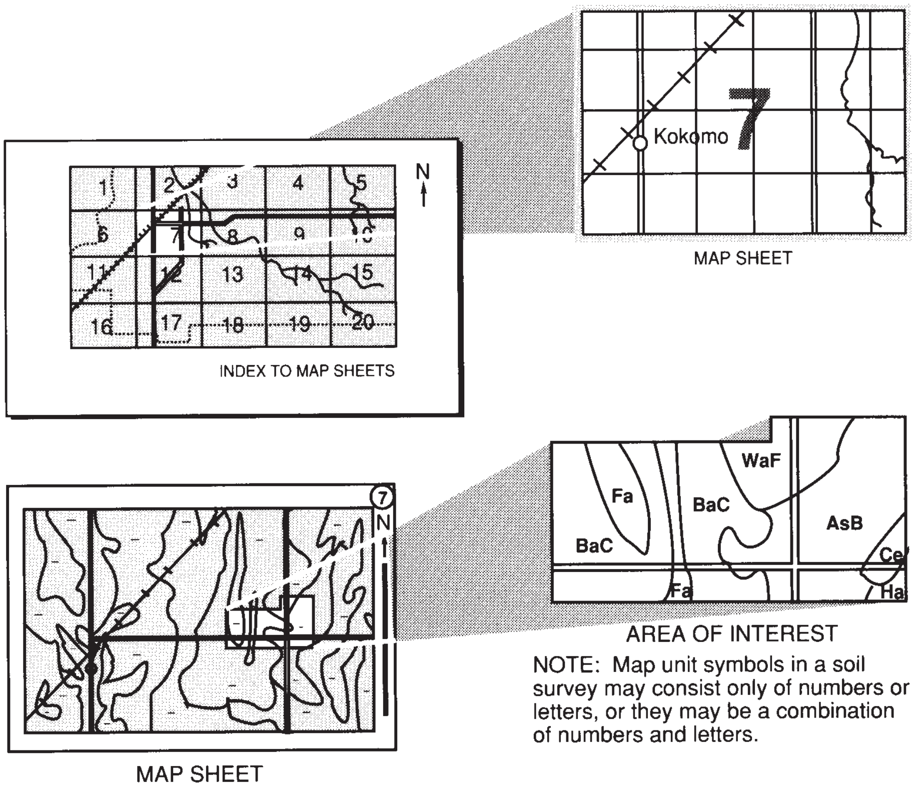
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service and the Forest Service, Bureau of Land Management, and Oregon State University, Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Ft. Rock-Silver Lake and Lakeview Soil and Water Conservation Districts.

Major fieldwork for this soil survey was completed in 2004. Soil names and descriptions were approved in 2006. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2006.

The most current soil information and interpretations for this survey area are available either through the Soil Data Mart or in the Field Office Technical Guide (FOTG) at the local field office of the Natural Resources Conservation Service. The Soil Data Mart is the Natural Resources Conservation Service data storage site for the official soil survey information. The FOTG is linked to the Soil Data Mart; therefore, the same information is available from both sources. Soil survey maps and tabular data can be accessed through the Soil Data Mart at http://soildatamart.nrcs.usda.gov. The official soil survey information stored at the Soil Data Mart and this soil survey report are also available through Web Soil Survey at http://websoilsurvey.nrcs.usda.gov/app/.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Nondiscrimination Statement

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers. If you believe you experienced discrimination when obtaining services from USDA, participating in a USDA program, or participating in a program that receives financial assistance from USDA, you may file a complaint with USDA. Information about how to file a discrimination complaint is available from the Office of the Assistant Secretary for Civil Rights. USDA prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual’s income is derived from any public assistance program. (Not all prohibited bases apply to all programs.)

To file a complaint of discrimination, complete, sign, and mail a program discrimination complaint form, available at any USDA office location or online at www.ascr.usda.gov, or write to:

USDA
Office of the Assistant Secretary for Civil Rights
1400 Independence Avenue, SW.
Washington, DC 20250-9410

Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service

at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender.

Persons with disabilities who require alternative means for communication of program information (e.g., Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

Cover Caption

View looking north from ridge south of the town of Fort Rock. Fields of irrigated alfalfa hay in Fort Rock Basin in foreground. China Hat and Fox Butte are in background.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

Contents

How To Use This Soil Survey i
Contents v
Foreword xxi
General Nature of the Survey Area 2
    Physiography, Relief, and Drainage 2
    History and Development 2
    Climate 5
How This Survey Was Made 6
    Soil Survey Procedures 7
General Soil Map Units 9
    Soils in Basins and Valleys 9
        1. Playas-Helphenstein 9
        2. Turpin-Southcat-Mesman 10
        3. Rabbithills-Enko-Kewake 10
        4. Thornlake-Abert-Flagstaff 10
        5. Paulina-Bridgewell-Chinarise 11
        6. Morehouse-Fort Rock-Bonnick 11
    Soils Dominantly in Areas of Rangeland on Plateaus, Hills, and Mountains 11
        7. Lithic Haploxerolls-Lava flows 11
        8. Felcher-Boilout-Lyeflat 12
        9. Raz-Brace-Moonbeam 12
        10. Crackedground-Wildcatbutte 12
        11. Dunres-Glencabin-Norcross 13
    Soils Dominantly in Areas of Forestland on Plateaus, Hills, and Mountains 13
        12. Wanoga-Henkle-Laidlaw 13
        13. Shukash-Steiger-Shanahan 13
Detailed Soil Map Units 15
    200—Abert ashy loamy sand, 0 to 2 percent slopes 16
    201—Actem cobbly loam, 2 to 20 percent slopes 17
    202—Alyan gravelly sandy loam, 3 to 15 percent slopes 18
    203—Anawalt gravelly clay loam, 0 to 12 percent slopes 19
    204—Anawalt very gravelly loam, 2 to 10 percent slopes 20
    205—Anawalt-Freznik complex, 1 to 5 percent slopes 21
    206—Anawalt-Oreneva complex, 0 to 12 percent slopes 22
    207—Anawalt-Raz complex, 2 to 10 percent slopes 23
    208—Anawalt-Rock outcrop complex, 2 to 15 percent slopes 25
    209—Atlow-Rock outcrop complex, 20 to 50 percent slopes 26
    210—Baconcamp-Clamp complex, 5 to 20 percent slopes 27
    211—Baconcamp-Rock outcrop complex, 3 to 30 percent slopes 28
    212—Bluesters gravelly ashy loamy sand, 15 to 50 percent slopes 29
    213—Bluesters gravelly ashy loamy sand, dry, 15 to 50 percent slopes 30
    214—Boilout cobbly ashy fine sandy loam, 2 to 10 percent slopes 31
    215—Bonnick gravelly ashy loamy sand, 1 to 5 percent slopes 32
    216—Bonnick gravelly ashy sandy loam, 0 to 15 percent slopes 33

217—Bonnick-Fort Rock complex, 0 to 2 percent slopes 35
218—Bonnick-Fort Rock complex, 1 to 8 percent slopes 36
219—Bonnick-Fort Rock complex, low precipitation, 1 to 8 percent slopes 38
220—Bonnick-Kunceider complex, 1 to 10 percent slopes.....................................39
221—Bonnick-Morehouse complex, 0 to 10 percent slopes...................................40
222—Booth very stony loam, 2 to 15 percent slopes...42
223—Booth-Rock outcrop complex, 2 to 15 percent slopes 43
224—Borobey ashy fine sandy loam, 0 to 5 percent slopes 44
225—Borobey ashy loamy sand, 0 to 5 percent slopes...45
226—Borobey ashy sandy loam, 2 to 15 percent slopes...46
227—Borobey-Morehouse complex, 0 to 20 percent slopes 47
228—Borobey-Oatmanflat ashy sandy loams, 1 to 5 percent slopes 48
229—Borobey-Overallflat complex, 0 to 2 percent slopes 50
230—Brabble-Calderwood complex, 5 to 25 percent slopes 51
231—Brace-Foleylake complex, 2 to 15 percent slopes..52
232—Bridgewell ashy loam, 0 to 2 percent slopes 54
233—Bridgewell ashy sandy loam, 0 to 2 percent slopes.......................................55
234—Bullump-Rock outcrop-Nuss complex, 20 to 70 percent south slopes 56
236—Bunyard ashy silt loam, 0 to 1 percent slopes 57
237—Cabinspring-Chesebro-Hayespring complex, 20 to 50 percent slopes 58
238—Calderwood-McConnel complex, 0 to 20 percent slopes 60
239—Carryback very cobbly loam, 2 to 15 percent slopes, eroded.........................62
240—Carryback very stony clay loam, 2 to 20 percent slopes 63
241—Carryback-Pearlwise complex, 3 to 15 percent slopes..................................64
242—Carvix silt loam, 0 to 5 percent slopes..65
243—Catlow gravelly sandy loam, 2 to 12 percent slopes 66
244—Catlow-Davey complex, 2 to 30 percent slopes 67
245—Catnapp extremely cobbly loam, 2 to 15 percent slopes...............................69
246—Chancelakes-Silverash complex, 0 to 1 percent slopes 70
247—Chen-Erakatak-Lambring complex, 15 to 50 percent slopes..........................71
248—Chesebro-Rock outcrop complex, 20 to 65 percent slopes...........................73
249—Cinderfall-Fort Rock-Kunceider complex, 1 to 8 percent slopes 74
250—Cleavage-Ninemile-Westbutte complex, 2 to 15 percent slopes 76
251—Cleet very gravelly sandy loam, 2 to 15 percent slopes 78
252—Clurde loam, 0 to 6 percent slopes...79
253—Clurde-Toll complex, 0 to 12 percent slopes...80
254—Connleyhills ashy coarse sandy loam, 2 to 15 percent slopes.......................81
255—Connleyhills cobbly ashy loam, 2 to 20 percent slopes 82
256—Cooperdraw-Fertaline complex, 1 to 5 percent slopes 83
257—Corral fine sandy loam, low precipitation, 2 to 15 percent slopes 85
258—Coztur sandy loam, 2 to 15 percent slopes 86
259—Crackedground cobbly ashy loamy sand, 1 to 5 percent slopes 87
260—Crackedground cobbly ashy loamy sand, 1 to 6 percent slopes 88
261—Crackedground-Kunceider complex, 1 to 5 percent slopes...........................89
262—Crackedground-Milcan complex, 1 to 5 percent slopes.................................90
263—Crackedground-Milcan-Rock outcrop complex, 1 to 5 percent slopes 91
264—Crackedground-Wegert complex, 1 to 15 percent slopes 93
266—Deppy-Rubble land complex, 30 to 50 percent slopes 94
267—Deppy-Tumtum complex, 5 to 15 percent slopes 95
268—Derallo-Chesebro association, 15 to 35 percent slopes 97
269—Derallo-Rock outcrop complex, 15 to 50 percent slopes 98
270—Derallo-Rock outcrop complex, 20 to 60 percent south slopes 99
271—Diablopeak-Yankeewell complex, 2 to 20 percent slopes 100
272—Drakesflat loam, 15 to 30 percent slopes 102

273—Drakesflat loam, 2 to 15 percent slopes 103
274—Dune land, 5 to 50 percent slopes 104
275—Dune land-Fossilake-Salhouse complex, 0 to 30 percent slopes 105
276—Dune land-Morehouse complex, 1 to 10 percent slopes 107
277—Dune land-Salhouse complex, 2 to 35 percent slopes 108
278—Dunres cobbly ashy sandy loam, 1 to 15 percent slopes 109
279—Dunres cobbly ashy sandy loam, thick surface, 1 to 8 percent slopes 110
280—Dunres stony ashy fine sandy loam, 1 to 6 percent slopes 111
281—Dunres-Henkle complex, 2 to 20 percent slopes 112
282—Dunres-Moonbeam complex, 1 to 8 percent slopes 114
283—Dunres-Moonbeam-Nuss complex, 1 to 20 percent slopes 115
284—Dunres-Murlose-Nuss complex, 1 to 20 percent slopes 117
285—Dunres-Moonbeam complex, 2 to 20 percent slopes 119
286—Dunres-Norcross complex, 1 to 8 percent slopes 120
287—Edemaps-Pernty-Rock outcrop complex, 2 to 20 percent slopes 122
288—Embal ashy sandy loam, 0 to 3 percent slopes 124
289—Embal-Paulina complex, 0 to 2 percent slopes 125
290—Enko sandy loam, 0 to 6 percent slopes 126
291—Enko loam, 1 to 10 percent slopes 127
292—Enko loamy sand, 2 to 8 percent slopes 128
293—Enko-Catlow complex, 7 to 15 percent slopes 129
294—Enko-McConnel complex, 0 to 5 percent slopes 131
295—Erakatak cobbly clay loam, moist, 5 to 20 percent slopes 132
296—Erakatak-Carryback complex, 15 to 30 percent slopes 133
297—Erakatak-Leevan-Rock outcrop complex, 20 to 50 percent slopes 135
298—Erakatak-Rock outcrop complex, 20 to 60 percent south slopes 136
299—Erakatak-Rubble land complex, 30 to 70 percent slopes 137
300—Felcher-Camptank-Rock outcrop complex, 15 to 45 percent slopes 138
301—Felcher-Fitzwater-Rock outcrop complex, 20 to 60 percent slopes 140
302—Felcher-Oreneva-Rock outcrop complex, 20 to 60 percent slopes 141
303—Felcher-Riddleranch-Rock outcrop complex, 20 to 60 percent slopes 143
304—Felcher-Rock outcrop complex, 15 to 45 percent south slopes 144
305—Felcher-Rock outcrop complex, 20 to 65 percent slopes 145
306—Felcher-Rock outcrop complex, 40 to 70 percent slopes 146
307—Felcher-Rock outcrop-Brezniak complex, 30 to 65 percent south slopes 147
308—Felcher-Rock outcrop-Westbutte complex, 20 to 40 percent slopes 149
309—Firelake-Enko complex, 1 to 20 percent slopes 150
310—Fitzwater extremely stony loam, 30 to 50 percent south slopes 152
311—Fitzwater-Rock outcrop complex, 20 to 60 percent north slopes 153
312—Flagstaff loamy sand, 1 to 8 percent slopes 154
313—Flagstaff complex, 0 to 1 percent slopes 155
314—Flagstaff-Playas complex, 0 to 1 percent slopes 156
315—Flagstaff-Salhouse complex, 0 to 20 percent slopes 158
316—Foleylake-Anawalt complex, 1 to 5 percent slopes 159
317—Fort Rock ashy sandy loam, 0 to 2 percent slopes 161
318—Fort Rock gravelly ashy sandy loam, 1 to 8 percent slopes 162
319—Fort Rock-Bonnick complex, 0 to 2 percent slopes 163
320—Fort Rock-Lapham complex, 0 to 2 percent slopes 164
321—Fort Rock-Lapham complex, warm, 0 to 10 percent slopes 166
322—Fort Rock-Morehouse complex, 0 to 2 percent slopes 167
323—Fort Rock-Morehouse complex, 1 to 5 percent slopes 169
324—Fort Rock-Morehouse complex, moist, 0 to 8 percent slopes 171
325—Fort Rock-Suckerflat complex, 0 to 8 percent slopes 172
326—Fossilake ashy fine sandy loam, 0 to 1 percent slopes 174

327—Fossilake-Salhouse complex, cool, 0 to 20 percent slopes..........................175
328—Giranch-Meld complex, 2 to 15 percent slopes 176
329—Glencabin gravelly ashy loam, 15 to 30 percent south slopes 178
330—Glencabin gravelly ashy loam, 30 to 65 percent north slopes......................179
331—Glencabin gravelly ashy loam, 30 to 65 percent south slopes 180
332—Glencabin complex, dry, 15 to 35 percent slopes.......................................181
333—Glencabin-Rock outcrop complex, 15 to 65 percent slopes 182
334—Glencabin-Rock outcrop complex, moist, 15 to 40 percent slopes..............183
335—Glencabin-Wanoga complex, 15 to 35 percent slopes 184
336—Glencabin-Yapoah-Rock outcrop complex, 15 to 50 percent slopes............186
338—Goodtack ashy very fine sandy loam, 2 to 10 percent slopes 188
339—Goodtack ashy very fine sandy loam, low precipitation, 1 to 5 percent slopes 189
340—Goodtack-Borobey complex, 0 to 10 percent slopes....................................190
341—Goodtack-Borobey complex, 1 to 5 percent slopes......................................191
342—Goodtack-Morehouse complex, 1 to 15 percent slopes 192
343—Goodtack-Sliptrack complex, 1 to 8 percent slopes 194
344—Gradon gravelly fine sandy loam, 0 to 8 percent slopes..............................195
345—Greenmountain gravelly ashy sandy loam, 1 to 8 percent slopes 196
346—Greenmountain-Jacksplace complex, 2 to 15 percent slopes 197
347—Greenmountain-Lastcall complex, 1 to 15 percent slopes...........................199
348—Greenmountain-Weglike complex, 2 to 10 percent slopes 200
349—Hackwood-Westbutte complex, 15 to 35 percent slopes.............................202
350—Hager complex, 2 to 15 percent slopes 203
351—Hayespring ashy loamy fine sand, 1 to 5 percent slopes 205
352—Hayespring-Dunres complex, 1 to 8 percent slopes....................................206
353—Hayespring-Moonbeam complex, 1 to 6 percent slopes 207
354—Hayespring-Moonbeam complex, 2 to 20 percent slopes 209
355—Hayespring-Moonbeam complex, cobbly, 2 to 15 percent slopes 210
356—Hayespring-Moonbeam complex, low precipitation, 1 to 8 percent slopes...212
357—Hayespring-Senra complex, 1 to 6 percent slopes......................................214
358—Helphenstein silt loam, 0 to 2 percent slopes 215
359—Helphenstein silt loam, frequently ponded, 0 to 2 percent slopes 216
360—Helphenstein very channery loam, 0 to 4 percent slopes............................217
361—Helphenstein-Kewake complex, 0 to 45 percent slopes..............................218
362—Helphenstein-Legler-Playas complex, 0 to 5 percent slopes........................220
363—Helphenstein-Pitcheranch-Reese complex, 0 to 2 percent slopes 222
364—Helphenstein-Turpin-Kewake complex, 0 to 15 percent slopes....................224
365—Henkle-Ludi complex, 20 to 40 percent slopes...225
366—Henkle-Wanoga complex, 1 to 15 percent slopes 227
367—Henkle-Wanoga complex, dry, 10 to 30 percent slopes 228
368—Horning ashy loamy sand, 2 to 20 percent slopes.......................................230
369—Horning-Tonor complex, 0 to 3 percent slopes 231
370—Icene-Playas complex, 0 to 1 percent slopes 232
371—Ipsoot very paragravelly ashy loamy coarse sand, 15 to 65 percent slopes 234
372—Ipsoot very paragravelly ashy loamy coarse sand, 30 to 65 percent north slopes 235
373—Ipsoot very paragravelly ashy loamy coarse sand, 30 to 65 percent south slopes..236
374—Jacksplace ashy fine sandy loam, moist, 2 to 15 percent slopes 237
375—Jacksplace ashy loamy sand, 1 to 6 percent slopes 238
376—Jacksplace cobbly ashy very fine sandy loam, 2 to 15 percent slopes 239
377—Jacksplace stony ashy loamy fine sand, 2 to 15 percent slopes 240

378—Jacksplace-Derallo-Glencabin complex, 5 to 60 percent slopes 241
379—Jacksplace-Senra complex, 5 to 15 percent slopes 243
380—Kewake loamy sand, 2 to 45 percent slopes 244
382—Kewake-Helphenstein complex, 0 to 25 percent slopes 245
383—Kewake-Helphenstein, dry, complex, 0 to 25 percent slopes 247
384—Kewake-Icene complex, 0 to 15 percent slopes 248
385—Kewake-Ozamis-Reese complex, 0 to 15 percent slopes 250
386—Kewake-Turpin complex, 0 to 45 percent slopes 252
387—Kewake-Turpin complex, sodic, 0 to 45 percent slopes 253
388—Krackle complex, 20 to 40 percent slopes 255
389—Kunceider cobbly ashy loamy sand, 0 to 15 percent slopes 256
390—Kunceider-Fort Rock complex, 1 to 5 percent slopes 257
391—Kunceider-Rock outcrop complex, 0 to 15 percent slopes 259
392—Kunceider-Wegert complex, 1 to 15 percent slopes 260
393—Laidlaw ashy loamy coarse sand, 5 to 15 percent slopes 261
394—Laidlaw ashy loamy sand, 15 to 40 percent slopes 262
395—Laidlaw-Wanoga complex, dry, 0 to 3 percent slopes 263
397—Lapham gravelly ashy loamy sand, 0 to 8 percent slopes 265
398—Lapine paragravelly ashy loamy coarse sand, 15 to 30 percent north slopes 266
399—Lapine paragravelly ashy loamy coarse sand, 0 to 15 percent slopes 267
400—Lapine paragravelly ashy loamy coarse sand, low landscape position, 0 to 3 percent slopes 268
401—Lastcall ashy sandy loam, 1 to 8 percent slopes 269
402—Lastcall complex, 1 to 10 percent slopes 270
403—Lastcall-Hayespring complex, 0 to 8 percent slopes 271
404—Lastcall-Hayespring complex, 1 to 5 percent slopes 272
405—Lastcall-Jacksplace-Embal complex, 1 to 5 percent slopes 274
407—Lastcall-Moonbeam complex, 1 to 10 percent slopes 276
408—Leevan-Fitzwater-Chen complex, 20 to 60 percent slopes 277
409—Leevan-Lambring-Rock outcrop complex, 20 to 60 percent slopes 279
410—Legler clay loam, 0 to 2 percent slopes 281
411—Bridgewell-Legler complex, 0 to 3 percent slopes 282
412—Bridgewell-Chancelakes association, 0 to 2 percent slopes 283
413—Lithic Haploxerolls-Lava flows complex, cool, 2 to 15 percent slopes 285
414—Lithic Haploxerolls-Lava flows complex, dry, 2 to 15 percent slopes 286
415—Locane cobbly clay loam, 2 to 8 percent slopes 286
416—Locane-Anawalt complex, 2 to 15 percent slopes 287
417—Locane-Deseed complex, 2 to 20 percent slopes 289
418—Locolake extremely cobbly sandy loam, 2 to 15 percent slopes 290
419—Locolake-McConnel complex, 3 to 10 percent slopes 291
420—Lostforest-Sandrock-Morehouse complex, 0 to 10 percent slopes 293
422—Ludi gravelly ashy fine sandy loam, 15 to 35 percent south slopes 295
423—Ludi gravelly ashy sandy loam, low precipitation, 15 to 30 percent north slopes 296
424—Ludi gravelly ashy sandy loam, low precipitation, 15 to 30 percent south slopes 297
425—Ludi gravelly ashy sandy loam, low precipitation, 15 to 50 percent north slopes 298
426—Ludi gravelly ashy loam, low precipitation, 30 to 50 percent south slopes ...299
427—Ludi very gravelly ashy sandy loam, 15 to 35 percent slopes 300
428—Ludi-Glassbutte-Ludi, north complex, 15 to 50 percent slopes 301
429—Ludi-Glassbutte complex, 15 to 50 percent slopes 303
430—Lyeflat ashy coarse sand, 1 to 5 percent slopes 304

431—Lyeflat very gravelly very fine sandy loam, 20 to 50 percent slopes............305
432—Lyeflat-Lyeflat, very cobbly-Rock outcrop complex, 2 to 50 percent slopes 306
433—Lyeflat-Rock outcrop complex, 2 to 20 percent slopes 308
434—McConnel cobbly sandy loam, 3 to 8 percent slopes 309
435—McConnel gravelly sandy loam, sodic substratum, 0 to 5 percent slopes....310
436—McConnel very gravelly sandy loam, 0 to 2 percent slopes 311
437—McConnel very gravelly sandy loam, 2 to 15 percent slopes 312
438—McConnel-Davey complex, 15 to 45 percent slopes 313
439—McConnel-Poorjug complex, 1 to 15 percent slopes 314
440—McConnel-Turpin complex, 2 to 15 percent slopes 316
441—McNye-Wildhill-Rock outcrop complex, 20 to 50 percent slopes..........317
442—Meld-Giranch complex, 2 to 20 percent slopes 319
443—Menbo stony loam, dry, 5 to 25 percent slopes 320
444—Merlin extremely stony loam, 0 to 15 percent slopes 321
445—Mesman fine sandy loam, 0 to 5 percent slopes 322
446—Mesman fine sandy loam, slightly alkaline, 0 to 5 percent slopes 323
447—Mesman-McConnel-Kewake complex, 2 to 8 percent slopes..........324
448—Milcan ashy loamy sand, 1 to 5 percent slopes..........326
449—Milcan-Jacksplace-Rock outcrop complex, 1 to 15 percent slopes 327
450—Millenium ashy silt loam, 0 to 2 percent slopes 328
451—Millenium ashy silt loam, basin floor, 0 to 2 percent slopes..........329
452—Millenium-Stauffer-Raztack complex, 0 to 2 percent slopes..........330
455—Moonbeam cobbly ashy fine sandy loam, 1 to 5 percent slopes 332
456—Moonbeam cobbly ashy loam, 2 to 15 percent slopes 333
457—Moonbeam extremely cobbly ashy loam, 1 to 8 percent slopes..........334
458—Moonbeam very gravelly ashy loam, 1 to 12 percent slopes..........335
459—Moonbeam very cobbly ashy loam, 1 to 8 percent slopes..........336
460—Moonbeam very cobbly ashy loam, 0 to 15 percent slopes..........337
461—Moonbeam-Connleyhills complex, 1 to 8 percent slopes 338
462—Moonbeam-Goodtack complex, 1 to 10 percent slopes 339
463—Moonbeam-Goodtack complex, 1 to 8 percent slopes 341
464—Moonbeam-Hayespring complex, 2 to 8 percent slopes 342
465—Moonbeam-Hayespring complex, moist, 2 to 12 percent slopes..........344
466—Moonbeam-Meld complex, 2 to 8 percent slopes..........345
467—Moonbeam-Senra complex, 2 to 20 percent slopes 347
468—Moonbeam-Senra complex, gravelly, 1 to 5 percent slopes..........348
469—Moonbeam-Senra-Hayespring complex, 1 to 8 percent slopes..........350
470—Morehouse ashy loamy fine sand, 0 to 2 percent slopes 352
471—Morehouse ashy loamy fine sand, 1 to 15 percent slopes 353
472—Morehouse ashy loamy fine sand, 2 to 20 percent slopes 354
473—Morehouse ashy loamy fine sand, high precipitation, 15 to 35 percent slopes 355
474—Morehouse complex, 1 to 20 percent slopes..........355
475—Morehouse-Playas complex, 0 to 2 percent slopes..........357
476—Morfitt loam, 0 to 2 percent slopes 358
477—Murlose cobbly ashy loam, 2 to 20 percent slopes..........359
478—Murlose gravelly ashy coarse sandy loam, 1 to 6 percent slopes 360
479—Ninemile very cobbly loam, 2 to 15 percent slopes 361
480—Ninemile very cobbly loam, low precipitation, 2 to 15 percent slopes 362
481—Ninemile-Arcia complex, 2 to 15 percent slopes 363
482—Ninemile-Carvix complex, 0 to 8 percent slopes 364
483—Ninemile-Edemaps complex, 2 to 10 percent slopes 366
484—Ninemile-Reluctan complex, 0 to 15 percent slopes 367

485—Ninemile-Reluctan-Rubble land complex, 2 to 30 percent slopes 369
486—Ninemile-Rock outcrop-Felcher complex, 15 to 35 percent slopes 370
487—Ninemile-Westbutte complex, 2 to 15 percent slopes 372
488—Ninemile-Westbutte-Ninemile extremely stony complex, 2 to 30 percent slopes 373
489—Noidee very stony fine sandy loam, 2 to 15 percent slopes 375
490—Norcross complex, 1 to 4 percent slopes 376
491—Norcross extremely cobbly ashy loam, 1 to 8 percent slopes 377
492—Norcross gravelly ashy loam, 1 to 15 percent slopes 378
493—Oatmanflat ashy very fine sandy loam, 0 to 2 percent slopes 379
494—Oatmanflat-Borobey ashy very fine sandy loams, 0 to 2 percent slopes......380
495—Old Camp very cobbly loam, 2 to 15 percent slopes 381
496—Old Camp very cobbly loam, 30 to 50 percent south slopes 382
497—Old Camp-Felcher-Rock outcrop complex, 15 to 50 percent slopes 383
498—Osoll-Panlee-Rock outcrop complex, 20 to 50 percent slopes......................385
499—Overallflat ashy very fine sandy loam, 0 to 2 percent slopes 387
500—Overallflat ashy very fine sandy loam, pluvial lake, 0 to 2 percent slopes....388
501—Overallflat-Morehouse complex, 0 to 5 percent slopes 389
502—Overallflat-Silverash complex, 0 to 1 percent slopes....................................390
503—Overallflat, hummocky-Silverash complex, 0 to 2 percent slopes 392
504—Ozamis silty clay, saline, 0 to 1 percent slopes 393
505—Ozamis-Reese complex, 0 to 1 percent slopes 394
506—Pait very cobbly loam, 5 to 30 percent slopes 396
507—Paulina ashy silty clay loam, 0 to 1 percent slopes 397
508—Paulina ashy silty clay loam, very gravelly substratum, 0 to 1 percent slopes 397
509—Paulina-Chinarise complex, 0 to 4 percent slopes 398
511—Pernty gravelly silt loam, 3 to 15 percent slopes 400
512—Pernty-Chesebro-Rock outcrop complex, 15 to 30 percent slopes 401
513—Pernty-Cleavage complex, 5 to 15 percent slopes 402
514—Pernty-Glencabin-Rock outcrop complex, 15 to 45 percent slopes..............404
516—Pernty-Westbutte-Ninemile association, 5 to 50 percent slopes 405
517—Picturerock ashy loam, 1 to 3 percent slopes...407
518—Pitcheranch silt loam, 0 to 1 percent slopes 408
519—Pitcheranch-Chinarise complex, 0 to 4 percent slopes 409
520—Playas...410
521—Playas, saline 411
522—Playas-Helphenstein complex, 0 to 2 percent slopes...................................412
523—Poorjug complex, 0 to 10 percent slopes 414
524—Poorjug-Rock outcrop complex, 2 to 15 percent slopes 415
525—Porterfield-Rock outcrop complex, 2 to 20 percent slopes 416
526—Puzzlebark-Morehouse-Morehouse, gently sloping complex, 2 to 25 percent slopes 417
527—Puzzlebark-Sandrock complex, 0 to 5 percent slopes..................................419
528—Rabbithills complex, 0 to 10 percent slopes 421
529—Rabbithills complex, basin, 0 to 10 percent slopes.......................................422
530—Rabbithills gravelly loamy sand, 0 to 5 percent slopes.................................424
531—Rabbithills gravelly sandy loam, sodic, 0 to 6 percent slopes 425
532—Rabbithills gravelly loam, 2 to 20 percent slopes 426
533—Rabbithills very gravelly loamy sand, 2 to 15 percent slopes 427
534—Rabbithills-Helphenstein complex, 0 to 10 percent slopes 428
535—Ratto very cobbly loam, 2 to 15 percent slopes..429
536—Raz cobbly fine sandy loam, overblown, 1 to 10 percent slopes..................430
537—Raz-Brace complex, 2 to 10 percent slopes...431

538—Raz-Brace complex, high precipitation, 2 to 20 percent slopes....................433
539—Raz-Brace complex, low precipitation, 2 to 20 percent slopes.....................434
540—Raz-Brace complex, overblown, 2 to 20 percent slopes 436
541—Raz-Poorjug complex, 2 to 15 percent slopes...437
542—Raz-Reallis association, 1 to 4 percent slopes..439
543—Raztack-Silverash-Embal complex, 0 to 1 percent slopes 440
544—Reallis fine sandy loam, 0 to 3 percent slopes 442
545—Reallis loamy sand, 0 to 2 percent slopes..443
546—Reallis complex, 0 to 4 percent slopes...444
547—Reallis-Yankeewell complex, 2 to 8 percent slopes.....................................445
548—Redcanyon-Rock outcrop complex, 30 to 50 percent north slopes.............447
549—Redcanyon-Rock outcrop complex, 30 to 50 percent south slopes 448
550—Redcliff-Rock outcrop complex, 30 to 65 percent south slopes....................449
551—Reese-Ozamis complex, 0 to 1 percent slopes..450
552—Reluctan loam, 2 to 20 percent slopes 451
553—Reluctan-Arness complex, 2 to 20 percent slopes 452
554—Riddleranch stony loam, 15 to 40 percent north slopes 454
555—Riddleranch very gravelly loam, 30 to 50 percent north slopes....................455
556—Riddleranch-Lambring-Rock outcrop complex, 20 to 50 percent slopes......456
557—Rinconflat stony loam, 3 to 10 percent slopes..457
558—Rock outcrop and Rubble land, 20 to 60 percent slopes.............................458
559—Rock outcrop-Blackhills complex, 15 to 35 percent slopes 459
560—Rock outcrop-Blackhills-Glencabin complex, 15 to 55 percent slopes 460
561—Rock outcrop-Felcher association, 30 to 70 percent south slopes...............461
562—Rock outcrop-Shukash complex, 15 to 50 percent slopes 462
563—Rock outcrop-Xeric Haplocambids complex, 20 to 60 percent slopes 464
564—Rock outcrop-Xeric Haplocambids-Rubble land complex, 50 to 90 percent slopes 465
565—Rock outcrop-Xerolls complex, 20 to 60 percent south slopes.....................466
566—Royst very cobbly loam, 2 to 15 percent slopes...466
567—Royst-Ninemile complex, 2 to 8 percent slopes 467
568—Royst-Nuss complex, 2 to 30 percent slopes 469
569—Sagehen very gravelly loam, 0 to 5 percent slopes.....................................470
570—Sagehen-Raz complex, 2 to 20 percent slopes...471
571—Salhouse ashy loamy fine sand, 3 to 15 percent slopes 473
572—Salhouse ashy loamy fine sand, strongly alkaline, 2 to 20 percent slopes...474
573—Salhouse-Tonor complex, 0 to 15 percent slopes...474
574—Seharney very stony sandy loam, 10 to 20 percent slopes..........................476
575—Seharney-Rabbithills-Enko complex, 1 to 20 percent slopes 477
576—Senra ashy fine sandy loam, 0 to 5 percent slopes.....................................479
577—Senra ashy fine sandy loam, 1 to 12 percent slopes...................................480
578—Senra-Borobey complex, 0 to 2 percent slopes..481
579—Senra-Dunres complex, 1 to 8 percent slopes 482
580—Senra-Goodtack complex, 2 to 10 percent slopes.......................................484
581—Senra-Goodtack complex, 2 to 20 percent slopes.......................................485
582—Senra-Goodtack-Suckerflat complex, 1 to 4 percent slopes 487
583—Senra-Hayespring complex, 1 to 8 percent slopes......................................489
584—Senra-Hayespring complex, droughty, 2 to 10 percent slopes.....................490
585—Senra-Moonbeam complex, 2 to 15 percent slopes.....................................492
586—Shanahan paragravelly ashy loamy coarse sand, cool, 0 to 1 percent slopes 493
587—Shanahan paragravelly ashy loamy coarse sand, low landscape position, 0 to 1 percent slopes...494
588—Shanahan-Shukash complex, 0 to 3 percent slopes 495

589—Shukash paragravelly ashy loamy coarse sand, 0 to 8 percent slopes........496
590—Shukash paragravelly ashy loamy coarse sand, cool, 0 to 3 percent slopes 497
591—Shukash-Rock outcrop complex, 15 to 65 percent north slopes 498
592—Shukash-Rock outcrop complex, 15 to 65 percent south slopes..................499
593—Shukash-Rock outcrop complex, 3 to 15 percent slopes 500
594—Shukash-Rock outcrop complex, cold, 3 to 15 percent slopes.....................501
595—Shukash-Rock outcrop complex, high elevation, 3 to 15 percent slopes 503
596—Shukash-Shanahan complex, 0 to 3 percent slopes 504
597—Shukash-Wanoga-Rock outcrop complex, 0 to 15 percent slopes 505
598—Sisters-Wanoga complex, 0 to 3 percent slopes 507
599—Sliptrack-Moonbeam complex, 1 to 6 percent slopes...................................508
600—Sliptrack-Oatmanflat complex, 0 to 4 percent slopes 510
601—Snakepit loamy sand, 0 to 3 percent slopes...511
602—Southcat gravelly loamy sand, 0 to 10 percent slopes 512
603—Southcat-Kewake complex, 1 to 15 percent slopes.......................................513
604—Southcat-Playas complex, 0 to 5 percent slopes...515
605—Spiderhole complex, 2 to 15 percent slopes...516
606—Stampede gravelly fine sandy loam, 1 to 5 percent slopes 518
607—Steiger ashy loamy coarse sand, 0 to 3 percent slopes 519
608—Steiger ashy loamy coarse sand, cool, 0 to 3 percent slopes 520
609—Steiger ashy loamy coarse sand, 3 to 15 percent slopes 521
610—Steiger-Rock outcrop complex, 30 to 65 percent north slopes.....................522
611—Steiger-Rock outcrop complex, 30 to 65 percent south slopes 523
612—Suckerflat ashy loamy fine sand, 2 to 15 percent slopes 524
613—Suckerflat ashy loamy sand, 0 to 8 percent slopes 525
614—Suckerflat cobbly ashy loam, 2 to 10 percent slopes 526
615—Suckerflat-Rock outcrop complex, 15 to 40 percent north slopes 527
616—Suckerflat-Rock outcrop complex, 15 to 40 percent south slopes................528
617—Suckerflat-Rock outcrop complex, 8 to 15 percent slopes 529
618—Suckerflat-Weglike complex, 2 to 6 percent slopes......................................530
619—Silverash ashy fine sandy loam, 0 to 1 percent slopes.................................531
620—Swalesilver loam, 0 to 1 percent slopes 532
621—Swalesilver silt loam, 0 to 2 percent slopes..533
622—Teguro cobbly loam, 2 to 20 percent slopes 534
623—Teguro gravelly loam, 5 to 20 percent slopes 535
624—Thompsoncabin, extremely bouldery-Thompsoncabin-Rock outcrop complex, 15 to 70 percent slopes 536
625—Thompsoncabin-Wildhill complex, 20 to 60 percent slopes..........................537
626—Thornlake ashy sandy loam, 0 to 2 percent slopes 539
627—Thornlake ashy sandy loam, nonsodic surface, 0 to 2 percent slopes 540
628—Thornlake complex, 0 to 2 percent slopes...541
629—Thornlake-Catlow-Kewake complex, 1 to 45 percent slopes.........................542
630—Thornlake-Kewake complex, 2 to 15 percent slopes....................................544
631—Thornlake-Morehouse complex, 0 to 15 percent slopes...............................546
632—Thornlake-Salhouse complex, 0 to 5 percent slopes....................................547
633—Thornlake-Salhouse complex, dunes, 0 to 20 percent slopes.......................549
634—Thornlake-Salhouse-Fossilake complex, 0 to 15 percent slopes 550
635—Teguro-Carryback complex, 5 to 20 percent slopes 552
636—Toll gravelly loamy sand, 2 to 20 percent slopes 553
637—Toll-Nevador complex, 0 to 15 percent slopes..554
638—Tonor ashy silt loam, 0 to 1 percent slopes 556
639—Tuffcabin ashy sandy loam, 1 to 10 percent slopes......................................557
640—Turpin fine sandy loam, 0 to 2 percent slopes..558

641—Turpin very fine sandy loam, 0 to 3 percent slopes 559
642—Turpin-Boravall-Playas complex, 0 to 5 percent slopes......560
643—Turpin-Kewake-Playas complex, 0 to 15 percent slopes......562
644—Turpin-Playas complex, 0 to 3 percent slopes......564
645—Turpin-Playas complex, saline, 0 to 3 percent slopes 565
646—Turpin-Playas complex, sodic, 0 to 3 percent slopes 566
647—Turpin-Rabbitcreek complex, 0 to 3 percent slopes 568
648—Turpin-Reese complex, 0 to 8 percent slopes 569
649—Turpin-Turpin, overblown, complex, 0 to 15 percent slopes 571
650—Vitale very cobbly sandy loam, 5 to 20 percent slopes......572
651—Wagontire gravelly clay loam, 2 to 20 percent slopes 573
652—Wanoga gravelly ashy loamy sand, 15 to 30 percent south slopes......574
653—Wanoga gravelly ashy loamy sand, 30 to 65 percent south slopes......575
654—Wanoga-Henkle complex, 0 to 15 percent slopes 576
655—Wanoga-Henkle complex, cool, 0 to 15 percent slopes......578
656—Wanoga-Henkle complex, dry, 0 to 15 percent slopes 579
657—Wanoga-Henkle complex, moist, 1 to 15 percent slopes......581
658—Wanoga-Henkle-Rock outcrop complex, 15 to 30 percent slopes......582
659—Wanoga-Henkle-Rock outcrop complex, 30 to 65 percent north slopes......584
660—Wanoga-Laidlaw gravelly ashy loamy sands, 0 to 3 percent slopes 585
661—Wanoga-Sisters complex, 3 to 15 percent slopes 587
663—Wegert ashy loamy fine sand, 0 to 15 percent slopes......588
664—Wegert ashy loamy sand, cool, 0 to 1 percent slopes......589
665—Wegert very cobbly ashy loamy fine sand, 0 to 15 percent slopes......590
666—Wegert-Kunceider complex, 0 to 3 percent slopes......591
667—Wegert-Kunceider complex, cool, 0 to 15 percent slopes 592
668—Wegert-Kunceider complex, high precipitation, 0 to 15 percent slopes......594
669—Wegert-Morehouse complex, 2 to 10 percent slopes......595
670—Weglike-Jacksplace complex, 1 to 6 percent slopes......597
671—Weglike-Suckerflat complex, 0 to 3 percent slopes......598
672—Westbutte-Lambring-Rock outcrop complex, 35 to 65 percent north slopes 599
673—Westbutte-Rock outcrop-Pernty association, 20 to 40 percent slopes......601
674—Widowspring silt loam, 0 to 2 percent slopes 602
675—Wildcatbutte-Chesebro-Glassbutte complex, 20 to 65 percent slopes......603
676—Wildcatbutte-Glencabin-Rock outcrop complex, 15 to 35 percent slopes 605
677—Wildcatbutte-Rock outcrop complex, 15 to 30 percent south slopes......607
678—Wildcatbutte-Rock outcrop complex, 20 to 50 percent slopes......608
679—Wildcatbutte-Suckerflat-Rock outcrop complex, 15 to 40 percent slopes 609
680—Winterim very gravelly loam, slump, 2 to 30 percent slopes 611
681—Wiskan-Rock outcrop complex, 15 to 45 percent slopes......612
682—Xerolls-Rock outcrop complex, 20 to 60 percent north slopes 613
683—Xerolls-Rock outcrop complex, 30 to 65 percent north slopes 614
684—Yankeewell very cobbly sandy loam, 2 to 15 percent slopes 615
685—Yankeewell-Noidee complex, 2 to 10 percent slopes 616
686—Yapoah gravelly ashy loamy sand, 15 to 40 percent north slopes 617
687—Yapoah gravelly ashy loamy sand, 15 to 40 percent south slopes......618
688—Youtlkue ashy silt loam, 0 to 2 percent slopes......619
689—Zorravista fine sand, 0 to 5 percent slopes......620
690—Zorravista-Hinton complex, 0 to 8 percent slopes 621
691—Lithic Haploxerolls-Lava flows complex, 2 to 15 percent slopes 622
692—Steiger ashy loamy coarse sand, 0 to 15 percent slopes 623
693—Steiger ashy loamy coarse sand, high elevation, 15 to 30 percent slopes...624

694—Steiger ashy loamy coarse sand, low landscape position, 0 to 3 percent slopes 625
695—Ninemile gravelly loam, hummocky, 0 to 8 percent slopes 627
696—Shanahan ashy loamy coarse sand, 0 to 15 percent slopes 628
888—Denied access 629
999—Water 629
Use and Management of the Soils 631
Land Capability Classification 631
Prime Farmland 632
Rangeland and Forestland 633
Rangeland 634
Forestland 638
Soil Properties 641
Engineering Soil Properties 641
Physical Soil Properties 642
Chemical Soil Properties 644
Water Features 644
Soil Features 646
Classification of the Soils 647
Taxonomic Units and Their Morphology 648
Abert Series 648
Actem Series 650
Alyan Series 652
Anawalt Series 653
Arcia Series 655
Arness Series 656
Atlow Series 658
Baconcamp Series 659
Blackhills Series 661
Bluesters Series 662
Boilout Series 664
Bonnick Series 666
Booth Series 669
Boravall Series 670
Borobey Series 672
Brabble Series 673
Brace Series 675
Brezniak Series 677
Bridgewell Series 678
Bullump Series 680
Bunyard Series 682
Cabinspring Series 684
Calderwood Series 686
Camptank Series 687
Carryback Series 689
Carvix Series 691
Catlow Series 692
Catnapp Series 694
Chancelakes Series 696
Chen Series 699
Chesebro Series 700
Chinarise Series 702
Cinderfall Series 704

Clamp Series....706
Cleavage Series....707
Cleet Series....708
Clurde Series....710
Connleyhills Series....712
Cooperdraw Series....714
Corral Series....716
Coztur Series....717
Crackedground Series....719
Davey Series....721
Deppy Series....723
Derallo Series....724
Deseed Series....726
Diablopeak Series....728
Drakesflat Series....730
Dunres Series....732
Edemaps Series....734
Embal Series....735
Enko Series....738
Erakatak Series....740
Felcher Series....742
Fertaline Series....743
Firelake Series....745
Fitzwater Series....746
Flagstaff Series....748
Foleylake Series....752
Fort Rock Series....754
Fossilake Series....756
Freznik Series....759
Giranch Series....760
Glassbutte Series....762
Glencabin Series....765
Goodtack Series....766
Gradon Series....768
Greenmountain Series....770
Hackwood Series....773
Hager Series....774
Hayespring Series....776
Helphenstein Series....778
Henkle Series....780
Hinton Series....782
Horning Series....784
Icene Series....786
Ipsoot Series....788
Jacksplace Series....790
Kewake Series....792
Krackle Series....793
Kunceider Series....795
Laidlaw Series....796
Lambring Series....798
Lapham Series....800
Lapine Series....801
Lastcall Series....804
Leevan Series....805

Legler Series 807
Lithic Haploxerolls 809
Locane Series 811
Locolake Series 812
Lostforest Series 814
Ludi Series 816
Lyeflat Series 818
McConnel Series 819
McNye Series 821
Meld Series 823
Menbo Series 824
Merlin Series 825
Mesman Series 827
Milcan Series 829
Millenium Series 830
Moonbeam Series 832
Morehouse Series 835
Morfitt Series 837
Murlose Series 838
Nevador Series 839
Ninemile Series 841
Noidee Series 843
Norcross Series 845
Nuss Series 846
Oatmanflat Series 847
Old Camp Series 850
Oreneva Series 851
Osoll Series 853
Overallflat Series 854
Ozamis Series 857
Pait Series 859
Panlee Taxadjunct 861
Paulina Series 863
Pearlwise Series 865
Pernty Series 866
Picturerock Series 867
Pitcheranch Series 869
Poorjug Series 871
Porterfield Taxadjunct 873
Puzzlebark Series 874
Rabbitcreek Series 876
Rabbithills Series 879
Ratto Series 881
Raz Series 883
Raztack Series 885
Reallis Series 887
Redcanyon Series 889
Redcliff Series 891
Reese Series 893
Reluctan Series 895
Riddleranch Series 896
Rinconflat Series 898
Royst Series 899
Sagehen Series 901

Salhouse Series 902
Sandrock Series 904
Seharney Series 905
Senra Series 907
Shanahan Series 909
Shukash Series 910
Silverash Series 912
Sisters Series 914
Sliptrack Series 916
Snakepit Series 918
Southcat Series 920
Spiderhole Series 922
Stampede Series 924
Stauffer Series 926
Steiger Series 928
Suckerflat Series 930
Swalesilver Series 931
Teguro Series 933
Thompsoncabin Series 934
Thornlake Series 936
Toll Series 937
Tonor Series 939
Tuffcabin Series 941
Tumtum Series 943
Turpin Series 944
Vitale Series 946
Wagontire Series 948
Wanoga Series 949
Wegert Series 950
Weglike Series 952
Westbutte Series 954
Widowspring Series 956
Wildcatbutte Series 957
Wildhill Series 959
Winterim Series 961
Wiskan Series 963
Xeric Haplocambids 965
Xerolls 966
Yankeewell Series 967
Yapoah Series 969
Youtlkue Series 971
Zorravista Series 973
Formation of the Soils 975
Climate 975
Plant and Animal Life 977
Parent Material 978
Geomorphology and Associated Landforms 979
References 983
Glossary 987
Tables 1009
Table 1.—Temperature and Precipitation 1010
Table 2.—Freeze Dates in Spring and Fall 1014
Table 3.—Growing Season 1016
Table 4.—Acreage and Proportionate Extent of the Soils 1017

Table 5.—Land Capability Classification 1032
Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities 1068
Table 7.—Engineering Soil Properties 1196
Table 8.—Physical Soil Properties 1428
Table 9.—Chemical Soil Properties 1539
Table 10.—Water Features 1621
Table 11.—Soil Features 1706
Table 12.—Taxonomic Classification of the Soils 1764

Issued 2012

Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. Farmers, ranchers, foresters, and agronomists can use the surveys to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the surveys to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the surveys to help them understand, protect, and enhance the environment.

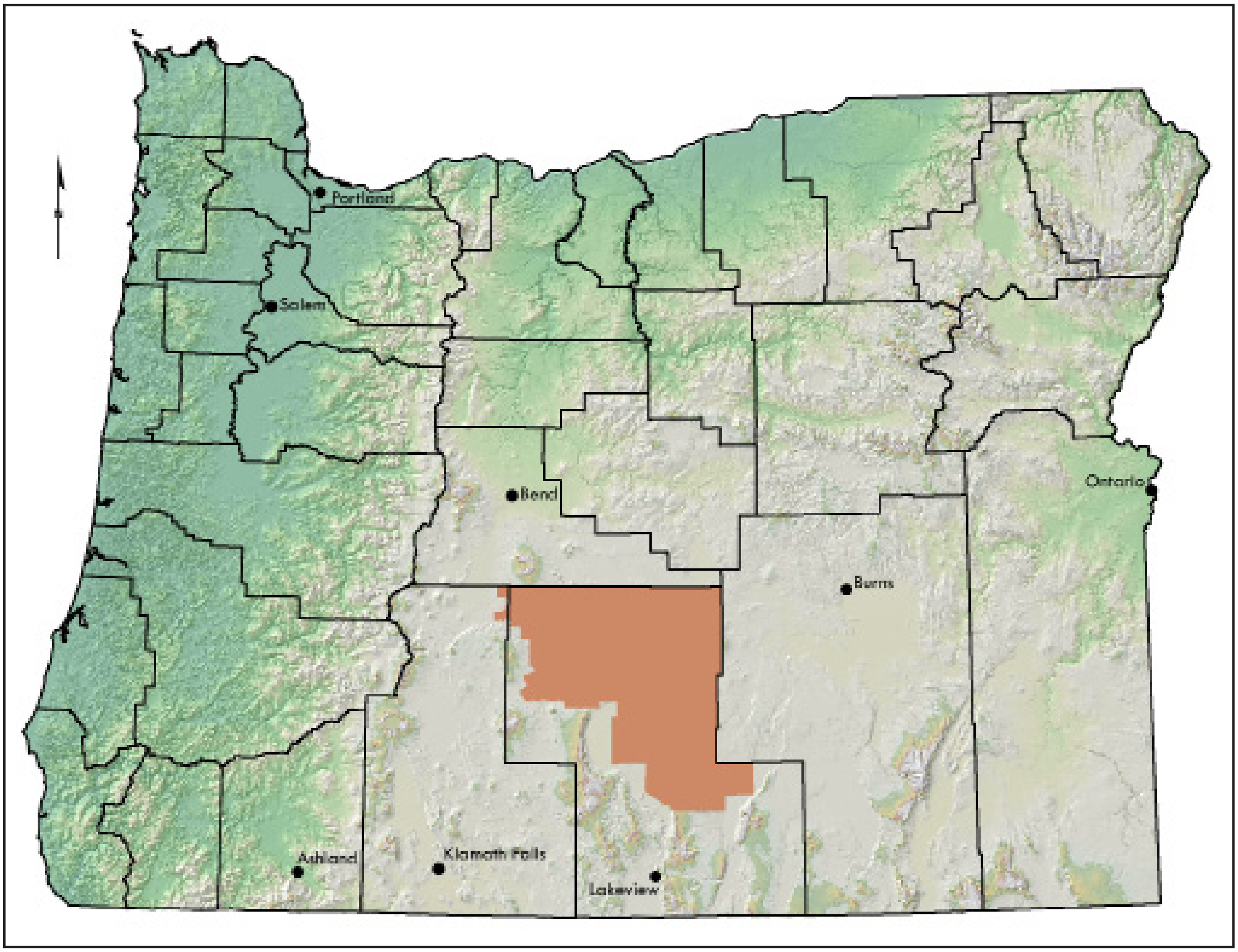
Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each map unit is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Ron Alvarado
State Conservationist
Natural Resources Conservation Service



Location of Lake County, Oregon, Northern Part, Parts of Lake and Klamath Counties.

Soil Survey of
Lake County, Oregon, Northern Part, Parts of Lake and Klamath Counties

By Russell W. Langridge, Natural Resources Conservation Service retiree, with assistance from other Natural Resources Conservation Service staff

Fieldwork by Ron Myhrum, Mark Keller, Gerald Macdonald, Gerald Weinheimer, Natural Resources Conservation Service; and Ed Horn, Curt Leet, and Gerhard Gareis, Bureau of Land Management

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
United States Department of Agriculture, Forest Service; United States Department of the Interior, Bureau of Land Management; and Oregon State University, Agricultural Experiment Station

LAKE COUNTY, OREGON, NORTHERN PART, PARTS OF LAKE AND KLAMATH COUNTIES, is in south-central Oregon. It includes the northern part of Lake County and part of Klamath County. The total area is about 2,716,379 acres. About 448,767 acres is private land, and the remainder is public land, of which 226,092 acres is in the Deschutes National Forest and administered by the Forest Service and 2,041,520 acres is administered by the Bureau of Land Management. The total population of Lake County was 7,895 in 2010, with approximately 1,100 living in the northern part. The largest towns are Silver Lake, Christmas Valley, and Fort Rock. The county seat, Lakeview, is about 100 miles to the south.

Most of the economy is directly or indirectly dependent upon ranching and farming. The cold winters; hot, dry summers; and risk of frost throughout most of the growing season limit the crops that can be grown. A significant agricultural business has developed in the basins with the production of high-quality irrigated alfalfa hay and rye. Livestock grazing is focused on both private and public rangeland, which makes up a large part of the survey area. The forestland, located in the northwestern part of the survey area, supports a small timber industry. Tourism is also important to the local economy. Many unusual and scenic geologic features are in the area. Examples are Fort Rock, a volcanic welded tuff ring formed by a sub-lacustrine vent eruption; Big Hole and Hole in the Ground, which are craters produced by maar volcanic explosions; Crack in the Ground, which is a large linear fracture about 20 feet deep in a recent lava flow; recent cinder cones and basalt flows on the flanks of volcanoes such as Green Mountain and Newberry Crater; and at the eastern edge of Christmas Valley, a large sand dunefield.

Soil scientists have identified 201 different soil types in the survey area. Each soil may include several different slope ranges, textures, aspects, or other phases. This soil survey includes 487 detailed soil map units.

Further assistance for landowners or operators interested in planning the use and management of the resources in a particular area is provided by the local office of the

Natural Resources Conservation Service. Technical guides maintained in the local office contain specific information for common conservation practices. The County Extension Service also provides soil-related information on crop management, crop varieties, fertilizer, and pest control and other agricultural concerns.

General Nature of the Survey Area

This section provides general information about the survey area. It describes physiography, relief, and drainage; history and development; and climate.

Physiography, Relief, and Drainage

The survey area is dominantly in the Basin and Range Province, more commonly called the Great Basin, which extends into Nevada and northern California. The area is characterized by basins that have closed or partially closed drainage systems and are separated by north- to south-trending fault-block ranges or escarpments. Areas of the Basin and Range Province that receive high amounts of precipitation support trees. Abert Lake, Alkali Lake, Fort Rock Valley, Silver Lake Valley, and Christmas Valley are the major basins in the survey area, and they include dry salt flats and shallow, saline playa lakes. During the Ice Age, large lakes filled these basins. The shorelines from these lakes are as much as 200 feet above the present floor of the basins (Snyder and Zdenek, 1964) and are represented by wave-cut benches in the areas of Rock outcrop and beach ridges along the margins of the basins. Silt and sand eroded from the surrounding areas of volcanic rock, airborne volcanic ash from local and Cascade Range volcanoes, and diatomite-rich sediment were deposited in the lakes. Many of the nearly level lake terraces in the basins are used as farmland. Perennial and intermittent creeks flowing from the more moist mountains to the south of the survey area drain into Silver Lake and Paulina Marsh. Small seasonal creeks drain snowmelt and rainwater from the surrounding uplands into basins such as Fort Rock Valley and Christmas Lake Valley. These basins are not drained, although there are relict overflow channels that connected the ancestral lakes during periods of high water. The basins in the survey area range in elevation from about 4,150 to 5,560 feet. The mean annual precipitation typically averages about 9 inches. The frost-free period is 50 to 100 days. Abert Rim, Horse Mountain, Eli Mountain, Cougar Mountain, Wildcat Mountain, Table Mountain, and Saint Patrick Mountain are major fault-block escarpments or ranges that separate the basins.

Extending from Summer Lake Valley and Abert Lake Valley to the north, are extensive areas that support juniper and sagebrush and consist of lava plateaus, hills, and mountains. Cinder cones, lava buttes, and maar volcanoes are scattered throughout these areas. Elevation is about 4,270 to 6,200 feet. The mean annual precipitation typically averages about 11 inches. The frost-free period is 50 to 100 days.

The northwestern corner of the survey area is on the southernmost, gently sloping flanks of the Newberry Crater area and is influenced by airborne deposits of volcanic ash and pumice from the Mt. Mazama and Newberry volcanic eruptions. These lava plateaus, hills, and mountains range in elevation from about 4,370 to 6,010 feet. The mean annual precipitation typically averages about 23 inches. The frost-free period is 10 to 80 days. White fir, ponderosa pine, and lodgepole pine forests are in this part of the survey area.

History and Development

By Jana Kittredge, Natural Resources Conservation Service.

Although European settlers have occupied Oregon for less than two centuries, Native Americans have inhabited the region for thousands of years. Records of this heritage are found at archaeological sites, in museums, and in the Native American culture exhibited by many tribal members. Early Paiute (Numa) people dominated wide open areas of the Great Basin desert regions of Nevada, California, Oregon, Idaho, Arizona, and Utah. The Paiute Indian tribe adapted to the high desert by hunting and gathering pine nuts, roots, seeds, birds, and fish. In fall, the Paiute people conducted collective hunts for jackrabbit and antelope. Basketry is an exquisite art form of the Paiutes. Some basketry recently was retrieved from the Connley Caves between Fort Rock and Silver Lake (http://www.u-s-history.com/or/n/nativeam.htm).

As time passed, the Northern Paiutes became prevalent throughout Lake County. Relics of their existence have been found in the local area. In 1938, Oregon State University geologist, Luther Cressman, discovered 75 sagebrush sandals with a carbon date of 9,000 years ago. They were found in Fort Rock Cave, about 1.5 miles west of the Fort Rock tuff ring. The cave was formerly known as Cow Cave to early ranchers in the area. This discovery by Cressman proved the existence of man in Fort Rock Valley in early times.

The first white men in the area, in the 1820s and 1830s, were probably fur trappers affiliated with the Hudson’s Bay Company or the American Fur Company. In 1843, during his second exploring expedition, John C. Fremont traveled through part of Lake County and onto Winter Ridge, which towers above the Summer Lake and Summer Valley areas. He had reported that his party had seen “the eastern border of the great basin 3 months ago at the Great Salt Lake,” but he found he was mistaken when he arrived in Lake County, Oregon. Although Fremont didn’t travel north of Summer Lake, he was responsible for naming many geographic features in Lake County, including Summer Lake and Abert Lake (Christmas Valley Chamber of Commerce).

In the 1860s, three trails trekked across the high desert area around what is now known as Christmas Valley. One was a military trail that extended from The Dalles, Oregon, to San Francisco, California; another was known as the Yreka Trail and was developed by prospectors seeking to reach the John Day goldfields; and the third extended from Jacksonville, Oregon, to Fort Boise, Idaho.

During the next few years, the high desert valleys were passed over by most homesteaders and ranchers searching for fertile bottom land with flowing water for farming. The high desert did supply “free grass” to some ranchers for cattle and roaming bands of sheep. Cattle and sheep ranchers began to fight for grazing rights in the high desert region (Christmas Valley Chamber of Commerce).

The first post office in Fort Rock was established in 1908 by Tom Rhoton, an area homesteader. At the time, many other towns in the area thrived. The population of Fort Rock was 60, and the population of Fremont was 30. Other towns established in the Fort Rock basin were Loma Vista, Wastina, Arrow, Buffalo, Cliff, Connley, Lake, Sink, and Viewpoint. In 1906 to 1912, when rainfall was higher than normal, families and single men and women laid claim to government land in Fort Rock Valley through the Federal Homestead Land Act. These plots of land were used for farming. The wet, marshy land in Silver Lake Valley was claimed first (Fort Rock Historical Society).

In the early 1920s, the Oregon Bureau of Mines and Geology drilled four test wells in the arid Fort Rock Valley. In the fall of 1921, the N.C. Jannsen Drilling Company of Portland dug a well on the farm of John and Beatrice Ernst, near the town of Fort Rock. On October 6, 1921, a public demonstration of the well attracted 150 people, who were also invited to celebrate at a community picnic and dance. The following spring, the Oregon Agricultural College established a demonstration plot on the Ernst land, planting 20 acres of alfalfa (Oregon Historical Society [http://ohs.org]).

The discovery of well water by the Fort Rock Development Company did not attract more settlers to the region nor was it used for large-scale irrigation. An invasion by rabbits, low rainfall, alkalinity of the soil, and soil erosion plagued the farmers in the valley. In the 1930s, the Federal government determined that farming was not practical in the Fort Rock Valley. Most settlers abandoned their land after several years, and others left when the already arid, dry valley experienced a drought from 1918 to 1945. By the late 1930s, extensive soil erosion occurred in the Fort Rock basin as a result of windy dust storms and farming and ranching. Since many of the original settlers could not make a living by farming, the Federal government bought their land through the Bankhead-Jones Act of 1937 and it was returned to public domain. Some of the homesteaders did survive on their small farms and ranches. Many raised cattle and produced nonirrigated rye hay for feed. Very few of their descendants reside in the area today (Oregon Historical Society).

By 1955, electricity finally made its way into the region with help from membership of the Fort Rock Grange. This led to new ways to develop irrigation systems for farming. Finally, in the later 1960s, electricity was used to pump water from irrigation wells, making it easier to raise hardy crops. Alfalfa proved to be a valiant, perennial crop that could be grown at the high desert elevation of about 4,300 feet. Long after the homestead era and with the introduction of electricity, many people migrated from the fertile Willamette Valley to attempt farming in this region.

During the 1960s, after several homestead towns had been abandoned, the survey area again began to experience growth. Only Silver Lake and Fort Rock survived, and Christmas Valley was just being developed. The town of Christmas Valley was established in 1961 by California real estate mogul, Penn Phillips. Phillips had the idea that this newfound town would become the “Palm Springs” of Oregon. Many people bought land sight unseen and came to the area only to find a vast wasteland that supported only sagebrush and greasewood and consisted of alkaline soils. Many area ranchers, however, were still working hard to produce alfalfa hay for feed, and cattle ranching remained prominent.

By the 1970s, many acres of sagebrush were converted to farmable land with the aid of electrical systems to pump well water for irrigation. This was an expensive effort for many, but by the 1980s Fort Rock Valley and Christmas Valley were gaining popularity as significant suppliers of hay for dairies. A group of farmers from Fresno, California, bought large acres of land in the area for production of alfalfa. The company was called Loma Vista, after the old homestead town. They created a cubing facility to export the unique alfalfa produced in the area.

In the following years, farmers came and went once again. A few stayed and had to further develop their land or buy more and more acres to farm successfully. In the early 1980s, the Oregon Water Resources Department declared a water use moratorium in the Fort Rock basin. No additional water rights for well drilling and irrigation could be established.

The town of Fort Rock is 75 miles southeast of Bend and 125 miles northeast of Klamath Falls. Alfalfa thrives in the sandy loam soils of the high desert, which are a result of volcanic activity. The sandy soils; unique weather conditions, including cool temperatures; and high elevation provide perfect conditions for producing high protein, fine-stemmed, leafy alfalfa. Alfalfa hay has been the main crop since the establishment of sprinkler irrigation systems, including pivot and wheeline methods. Wheeline systems are used to irrigate square fields, and the sprinklers are moved manually with the assistance of gasoline-driven motors. Pivot systems are used to irrigate circular areas, and the sprinklers are moved automatically with electricity as the power supply. Hay crops that can also be grown successfully include oats, barley, and triticale. These crops are used in rotation with alfalfa and as a cover crop when reseeding alfalfa.

Most area farmers bale alfalfa and grain hay late at night or early in the morning. The cool, dark, damp conditions create a suitable environment for the best hay. The moisture content of the cured hay is the key factor to ensuring minimal shattering of the alfalfa leaves during the baling process.

Currently, farmers in the area grow some of the best hay in the West. The moderate temperatures during the day and cool temperatures at night in the Fort Rock Valley and Christmas Valley areas allow alfalfa to grow slowly, creating a fine-stemmed hay that is rich in protein and nutrients. This hay has been proven to boost milk production in dairy cows, providing the desirable total digestible nutrients (TDN) and protein content sought by dairy farmers. This hay supplies farmers in Washington, Idaho, California, Alaska, Hawaii, and Canada as well as Oregon. Pressed, cubed alfalfa hay is also produced in the area. This product supplies domestic markets as well as international markets, including Japan, Taiwan, and Korea.

Climate

Prepared by the Natural Resources Conservation Service, National Water and Climate Center, Portland, Oregon.

Temperature and precipitation data for the survey area were collected at the Summer Lake 1 S, Alkali Lake, Silver Lake Ranger Station, and The Poplars, Oregon, climate stations during the period 1947 to 2005. Thunderstorm days, relative humidity, percent sunshine, and wind information were estimated from data collected at the First Order station in Winnemucca, Nevada.

Table 1 gives data on temperature and precipitation for the survey area as recorded at each of the climate stations in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature ranges from 30.4 degrees F at The Poplars to 34.0 degrees at Summer Lake 1 S and the average daily minimum temperature ranges from 19.4 degrees at The Poplars to 24.9 degrees at Summer Lake 1 S. The lowest temperature on record, which occurred at The Poplars and Alkali Lake on January 22, 1962, is -38 degrees. In summer, the average temperature ranges from 61.0 degrees at The Poplars to 66.1 degrees at Summer Lake 1 S. The average daily maximum temperature ranges from 80.3 to 83.7 degrees. The highest temperature on record, which occurred most recently at Silver Lake Ranger Station on July 28, 1998, is 105 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The observed average annual precipitation ranges from about 8.4 inches at Alkali Lake to 12.74 inches at Summer Lake 1 S. Annual precipitation determined from spatial analysis taking into account the elevation, aspect, and slope, ranges from 8 inches to 53 inches. Most of the climate stations are in the valleys; thus, the data reflects precipitation amounts at those elevations, with a high of 12.74 inches. About 10 to 15 percent of the survey area is at higher elevations, and precipitation in these areas ranges from about 14 inches to as much as 53 inches. Of the total amount of precipitation, the percentage that usually falls in June through September at the low elevations is about 10 percent and that at the highest elevations is about 20 percent. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 3.34 inches at Summer Lake 1 S on December 22, 1964. Thunderstorms occur on about 15.9 days each year, and most occur in August.

The average seasonal snowfall ranges from 14 to 22 inches. The greatest snow depth at any one time was 120 inches recorded at Summer Lake 1 S on March 10, 1967. On average, 10 to 15 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall was 12 inches recorded at Summer Lake 1 S on February 2, 1975. A 3-day storm during that time produced 22.5 inches of snow.

The average relative humidity in midafternoon is about 33 percent. Humidity is higher at night, and the average at dawn is about 64 percent. The sun shines

83 percent of the time possible in summer and 53 percent in winter. The prevailing wind is from the west. Average windspeed is highest, 8.7 miles per hour, in April.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Survey Procedures

The guidelines followed in producing this survey are described in the National Soil Survey Handbook (http://soils.usda.gov/technical/handbook/).

The survey area was mapped using National High Altitude Photography (NHAP), color infrared photography at an enlarged scale of 1:24,000. Aerial photograph coverage with alternate color and black and white prints was used for areas outside of the National forest. The Forest Service provided aerial photographs for fieldwork within the boundaries of National forest. The compilation base imagery used was dated 2000 to 2005, which was the most current at the time. The orthophotograph imagery used for the soil maps in the publication was dated 2005. Because the boundary between water and soil can fluctuate dramatically as a result of differences in the amount of runoff, using imagery from a different year will affect the placement of a map unit line between water and soil. If the digital map unit lines as based on the 2000 to 2005 imagery are superimposed over imagery from a different year, the lines between soil and water may not coincide.

The Bureau of Land Management (BLM) had lead responsibility for mapping all of the land in the survey area that is managed by the BLM. In addition, the BLM had leadership in digitizing compiled maps for the entire survey area. The Natural Resources Conservation Service had lead responsibility for mapping all other land in the survey area, including the land administered by the Forest Service. In some areas, access was denied by landowners. These areas are included in detailed soil map unit 888.

Slopes on the hills and mountains were determined by use of contour intervals on topographic maps and by stereoscopic study. Transects were used to map soils in level areas that did not have easily predictable patterns, such as those on flood plains. Tonal patterns on aerial photographs were used to predict some preliminary map unit delineations, although the extent and composition of each map unit was determined by the use of line-intercept transects. The transect lines and field samples were taken at regular intervals, commonly crossing several map unit delineations on a single geomorphic surface. Where predictable soil patterns exist, such as on terraces and plateaus, landform traverses were used to correlate soils with a particular geomorphic surface. Preliminary map unit delineations were drawn using soil-landform models. Field sampling was used to support the particular soil-landform model established for each area. Traverses were planned by using topographic maps and photo-interpretation of tonal patterns, slope, and aspect. The traverses crossed typical geomorphic surfaces and varying slopes in the area. Potential plant communities were correlated with specific soil characteristics. Some soil features that influence potential plant communities include a clayey subsoil, drainage, and salt content. A soil-potential plant community model was used to support the soil-landform model. Tonal patterns on aerial photographs were used to predict the presence of wet, droughty, or shallow soils, patterns of cobbles or stones, eroded areas, saline soils, and soils that have a duripan. Aspect contrasts also are evident on aerial photographs. The type and density of vegetation commonly reflect the depth and available water capacity of soils.

This survey area was mapped at Order 2 and Order 3 levels of detail. The areas managed for irrigated and nonirrigated cropland, planned community development, wetlands, and other environmentally sensitive areas were mapped at Order 2 intensity. Most of the map units are consociations, although complexes of phases of soil series or miscellaneous areas were used if needed because of the soil patterns. The average size of an area for which management decisions were made was about 40 acres. The maximum size of a contrasting inclusion did not exceed 5 acres. The soils in each delineation were identified by direct field examination, and the boundary of each delineation was observed.

The areas of forestland were mapped at Order 3 intensity. The map units are consociations and associations and complexes of phases of soil series and miscellaneous areas. The average size of an area for which management decisions were made was about 160 acres. The maximum size of a contrasting inclusion did not exceed 6 acres. Each delineation was observed in the field, and the boundary was determined by using field checks, photo-interpretation, topographic maps, and other remote sensing techniques. Traverses and transects were made to validate map unit composition and to correlate plant associations to soil patterns and composition.

The areas of rangeland were mapped at Order 3 intensity. The map units are consociations, complexes, and associations. The average size of an area for which management decisions were made was about 320 acres. The minimum size of a delineation generally was about 160 acres, but delineations as small as 15 acres in size were used in areas considered to have high resource value. Transects were made to correlate rangeland ecological sites to soil patterns and composition.

Soil samples for chemical and physical analysis were taken for some of the typical pedons of the major soils in the survey area. The analyses were made by the National Soil Survey Laboratory in Lincoln, Nebraska, and by the laboratory at Oregon State University. The results of the analyses were used in classifying the soils, establishing soil properties, and making interpretations.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. The 13 general soil map units in this survey have been grouped into three broad groups based on landform and vegetation. Each unit on the map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Soils in Basins and Valleys

This group consists of six map units. It makes up about 26 percent of the survey area. The soils are used primarily as irrigated cropland and for livestock grazing.

1. Playas-Helphenstein

Playas, and saline and sodic, somewhat poorly drained and poorly drained, warm, arid soils

Percentage of survey area: 1 percent
Map unit composition:
- Very deep, poorly drained Playas on playas of basins—50 percent
- Very deep, somewhat poorly drained Helphenstein soils on lakebeds in basins—30 percent
- Minor soils such as poorly drained Ozamis and Reese soils and excessively drained Kewake soils—20 percent

Landform: Playas and lakebeds
Elevation: 4,150 to 5,090 feet
Frost-free period: 50 to 100 days
Mean annual precipitation: 8 to 15 inches
Mean annual air temperature: 45 to 50 degrees F

2. Turpin-Southcat-Mesman

Saline and sodic, well drained and somewhat excessively drained, warm, arid soils

Percentage of survey area: About 3 percent
Map unit composition:
- Very deep, well drained Turpin soils on lake terraces in basins—65 percent
- Very deep, somewhat excessively drained Southcat soils on beach plains in basins—15 percent
- Very deep, well drained Mesman soils on lake terraces in basins—10 percent
- Minor soils such as poorly drained Boravall and Reese soils, moderately well drained Icene soils, and excessively drained Kewake soils, and Playas—10 percent

Landform: Lake terraces and beach plains
Elevation: 4,190 to 5,130 feet
Frost-free period: 80 to 100 days
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F

3. Rabbithills-Enko-Kewake

Nonsaline and nonsodic, well drained and excessively drained, warm, arid soils

Percentage of survey area: About 7 percent
Map unit composition:
- Shallow, well drained Rabbithills soils on lake terraces and fan remnants in basins—35 percent
- Very deep, well drained Enko soils in swales and on fan piedmonts in basins—30 percent
- Very deep, excessively drained Kewake soils on dunes in basins—15 percent
- Minor soils such as well drained Catlow and Clurde soils, moderately well drained Morfitt soils, and somewhat excessively drained McConnel and Toll soils—20 percent

Landform: Lake terraces, fan remnants, fan piedmonts, swales, and dunes
Elevation: 4,220 to 5,560 feet
Frost-free period: 80 to 100 days
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F

4. Thornlake-Abert-Flagstaff

Saline and sodic, moderately well drained and well drained, cool, arid soils

Percentage of survey area: About 6 percent
Map unit composition:
- Very deep, well drained Thornlake soils on lakebeds in basins—30 percent
- Very deep, well drained Abert soils on lakebeds in basins—25 percent
- Very deep, moderately well drained Flagstaff soils on lakebeds in basins—25 percent
- Minor soils such as somewhat poorly drained Fossilake soils, well drained Tonor soils, and somewhat excessively drained Salhouse soils—20 percent

Landform: Lakebeds
Elevation: 4,280 to 4,820 feet
Frost-free period: 50 to 80 days
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F

5. Paulina-Bridgewell-Chinarise

Nonsaline and nonsodic, very poorly drained to somewhat poorly drained, cool, arid soils

Percentage of survey area: About 1 percent
Map unit composition:
- Very deep, very poorly drained Paulina soils on lakebeds in basins—35 percent
- Very deep, poorly drained Bridgewell soils on lakebeds in basins—25 percent
- Very deep, somewhat poorly drained Chinarise soils on lake terraces in basins and on stream terraces in valleys—20 percent
- Minor soils such as poorly drained Pitcheranch soils and somewhat poorly drained Youtlkue soils—20 percent

Landform: Lakebeds, lake terraces, and stream terraces
Elevation: 4,300 to 5,490 feet
Frost-free period: 50 to 80 days
Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 43 to 45 degrees F

6. Morehouse-Fort Rock-Bonnick

Nonsaline and nonsodic, somewhat excessively drained, cool, arid soils

Percentage of survey area: About 8 percent
Map unit composition:
- Very deep, somewhat excessively drained Morehouse soils on dunes in basins—35 percent
- Very deep, somewhat excessively drained Fort Rock soils on lake terraces in basins—15 percent
- Very deep, somewhat excessively drained Bonnick soils on lake terraces in basins—15 percent
- Minor soils such as somewhat excessively drained Borobey, Horning, Lapham, and Salhouse soils; well drained Reallis soils; and moderately well drained Overallflat soils; and Dune land—35 percent

Landform: Dunes and lake terraces
Elevation: 4,290 to 4,840 feet
Frost-free period: 50 to 80 days
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F

Soils Dominantly in Areas of Rangeland on Plateaus, Hills, and Mountains

This group consists of five map units. It makes up about 66 percent of the survey area. The soils are used primarily for livestock grazing and as wildlife habitat.

7. Lithic Haploxerolls-Lava flows

Shallow, cool, arid soils, and Lava flows

Percentage of survey area: About 2 percent
Map unit composition:
- Shallow Lithic Haploxerolls on lava fields of lava plateaus—60 percent
- Lava flows on lava fields of lava plateaus—40 percent

Landform: Lava fields

Elevation: 4,380 to 5,610 feet
Frost-free period: 50 to 80 days
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F

8. Felcher-Boilout-Lyeflat

Shallow and moderately deep, warm, arid soils

Percentage of survey area: About 7 percent
Map unit composition:
- Moderately deep Felcher soils on lava plateaus, hillslopes, and mountain slopes—30 percent
- Shallow Boilout soils on lava plateaus—10 percent
- Shallow Lyeflat soils on hillslopes—5 percent
- Minor soils such as shallow Calderwood, Cleet, Firelake, Old Camp, Osoll, and Poorjug soils—55 percent

Landform: Lava plateaus, hillslopes, and mountain slopes
Elevation: 4,270 to 6,130 feet
Frost-free period: 80 to 100 days
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 50 degrees F

9. Raz-Brace-Moonbeam

Shallow and moderately deep, cool, arid soils

Percentage of survey area: About 53 percent
Map unit composition:
- Shallow Raz soils on lava plateaus—15 percent
- Moderately deep Brace soils on lava plateaus—10 percent
- Shallow Moonbeam soils on lava plateaus—10 percent
- Minor soils such as shallow Anawalt, Diablopeak, Goodtack, Kunceider, Ninemile, Senra, and Suckerflat soils and moderately deep Greenmountain, Lastcall, Wegert, and Weglike soils—65 percent

Landform: Lava plateaus
Elevation: 4,320 to 6,200 feet
Frost-free period: 50 to 80 days
Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 43 to 45 degrees F

10. Crackedground-Wildcatbutte

Deep and very deep, cool, arid soils

Percentage of survey area: About 1 percent
Map unit composition:
- Deep Crackedground soils on lava plateaus and lava plains—45 percent
- Very deep Wildcatbutte soils on lava plateaus, hillslopes, and mountain slopes—20 percent
- Minor soils such as shallow Kunceider soils, moderately deep Wegert soils, deep Derallo soils, and very deep Chesebro soils—35 percent

Landform: Lava plateaus, lava plains, hillslopes, and mountain slopes
Elevation: 4,310 to 5,760 feet
Frost-free period: 50 to 80 days

Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 43 to 45 degrees F

11. Dunres-Glencabin-Norcross

Shallow and moderately deep, cool, semiarid soils

Percentage of survey area: About 3 percent
Map unit composition:
- Shallow Dunres soils on lava plateaus—45 percent
- Moderately deep Glencabin soils on hillslopes—35 percent
- Shallow Norcross soils on lava plateaus—10 percent
- Minor soils such as shallow Murlose soils and moderately deep Booth, Erakatak, Westbutte, and Vitale soils—10 percent

Landform: Lava plateaus and hillslopes
Elevation: 4,340 to 5,820 feet
Frost-free period: 50 to 80 days
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 43 to 45 degrees F

Soils Dominantly in Areas of Forestland on Plateaus, Hills, and Mountains

This group consists of two map units. It makes up about 8 percent of the survey area. The soils are used primarily for timber harvesting, livestock grazing, and wildlife habitat.

12. Wanoga-Henkle-Laidlaw

Shallow, moderately deep, and very deep, cool, semiarid soils

Percentage of survey area: About 4 percent
Map unit composition:
- Moderately deep Wanoga soils on lava plateaus, hillslopes, and mountain slopes—45 percent
- Shallow Henkle soils on hillslopes and mountain slopes—30 percent
- Very deep Laidlaw soils on maar volcanoes and in depressions of lava plateaus—10 percent
- Minor soils such as moderately deep Royst soils, deep and very deep Sisters soils, and very deep Yapoah soils—15 percent

Landform: Lava plateaus, hillslopes, and mountain slopes
Elevation: 4,370 to 5,890 feet
Frost-free period: 50 to 80 days
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 43 to 45 degrees F

13. Shukash-Steiger-Shanahan

Very deep, cold, semiarid soils

Percentage of survey area: About 4 percent
Map unit composition:
- Very deep Shukash soils on lava plateaus and hillslopes—45 percent
- Very deep Steiger soils on lava plateaus and hillslopes—25 percent

- Very deep Shanahan soils on lava plateaus—15 percent
- Minor soils such as moderately deep Ipsoot soils and very deep Lapine soils—15 percent

Landform: Lava plateaus and hillslopes
Elevation: 4,600 to 6,010 feet
Frost-free period: 10 to 50 days
Mean annual precipitation: 15 to 35 inches
Mean annual air temperature: 40 to 44 degrees F

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Minor soil components that have properties similar to those of the dominant soil or soils in the map unit do not affect use and management. They are called noncontrasting, or similar, components. They typically are not mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. The soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management.

For example, Morehouse ashy loamy fine sand, 0 to 2 percent slopes, is a phase of the Morehouse series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or associations.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Anawalt-Freznik complex, 1 to 5 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Raz-Reallis association, 1 to 4 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties, characteristics, and capabilities of the soils. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

200—Abert ashy loamy sand, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,820 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Abert and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Abert

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 15.5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 160
Available water capacity: Moderate (about 9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 2 inches; ashy loamy sand
Bw—2 to 8 inches; ashy sandy loam
2Bk—8 to 13 inches; ashy loam
2Bkn—13 to 25 inches; ashy silt loam
2Bknz—25 to 35 inches; ashy silt loam
3C—35 to 60 inches; gravelly ashy loamy sand

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lakebeds

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Thornlake soils
Percentage of map unit: 5 percent
Landform: Lakebeds

201—Actem cobbly loam, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,910 to 5,370 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Actem and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Actem

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Old alluvium and colluvium derived from volcanic rock such as basalt, rhyolite, tuff, or andesite
Slope range: 2 to 20 percent
Depth to restrictive features: 12 to 20 inches to an indurated duripan, 20 to 30 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYEY 10-12 PZ (R023XY220OR)

Typical profile
A—0 to 2 inches; cobbly loam
Bt—2 to 7 inches; clay
Btk—7 to 15 inches; clay loam
Bkqm—15 to 20 inches; cemented material
R—20 to 30 inches; bedrock

Dissimilar Minor Components

Playas
Percentage of map unit: 5 percent
Landform: Playas

Rock outcrop
Percentage of map unit: 5 percent

Wagontire soils
Percentage of map unit: 5 percent
Landform: Dissected old alluvial terraces

202—Alyan gravelly sandy loam, 3 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,600 to 5,890 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Alyan and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Alyan

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Residuum and colluvium derived from volcanic rock such as welded tuff, basalt, or rhyolite
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 3 inches; gravelly sandy loam
A2—3 to 11 inches; sandy clay loam

Bt—11 to 23 inches; clay loam
R—23 to 33 inches; bedrock

Dissimilar Minor Components

Carryback soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Reluctan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

203—Anawalt gravelly clay loam, 0 to 12 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,560 to 5,930 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Anawalt and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Anawalt

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 0 to 12 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 10-12 PZ (R023XY214OR)

Typical profile
A—0 to 3 inches; gravelly clay loam
Bt1—3 to 7 inches; cobbly clay
Bt2—7 to 18 inches; cobbly clay
R—18 to 28 inches; bedrock

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Raz soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

204—Anawalt very gravelly loam, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,980 to 5,660 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Anawalt and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Anawalt

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 10 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW GRAVELLY LOAM 10-12 PZ (R023XY215OR)

Typical profile
A—0 to 3 inches; very gravelly loam
Bt1—3 to 7 inches; cobbly clay loam
Bt2—7 to 18 inches; cobbly clay
R—18 to 28 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 10 percent

Foleylake soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

205—Anawalt-Freznik complex, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,640 to 6,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Anawalt and similar soils: 45 percent
Freznik and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Anawalt

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 10-12 PZ (R023XY214OR)

Typical profile
A—0 to 3 inches; stony loam
Bt1—3 to 7 inches; cobbly clay loam
Bt2—7 to 18 inches; cobbly clay loam
R—18 to 28 inches; bedrock

Characteristics of Freznik

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Residuum and colluvium derived from volcanic rock such as tuff or basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 20 to 35 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: THIN SURFACE CLAYPAN 10-16 PZ (R023XY218OR)

Typical profile
A—0 to 2 inches; very cobbly loam
Bt1—2 to 11 inches; clay
Bt2—11 to 17 inches; clay
Btk—17 to 23 inches; clay
C—23 to 31 inches; clay loam
R—31 to 41 inches; bedrock

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Sagehen soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Foleylake soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

206—Anawalt-Oreneva complex, 0 to 12 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 5,500 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Anawalt and similar soils: 65 percent
Oreneva and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Anawalt

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 0 to 12 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW GRAVELLY LOAM 10-12 PZ (R023XY215OR)

Typical profile
A—0 to 3 inches; gravelly loam
Bt1—3 to 7 inches; cobbly clay loam
Bt2—7 to 18 inches; cobbly clay
R—18 to 28 inches; bedrock

Characteristics of Oreneva

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 0 to 5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 2 inches; gravelly loam
Bw1—2 to 10 inches; clay loam
Bw2—10 to 21 inches; very gravelly loam
2R—21 to 31 inches; bedrock

Dissimilar Minor Components

Felcher soils
Percentage of map unit: 4 percent
Landform: Hillslopes

Playas
Percentage of map unit: 3 percent
Landform: Playas

Rock outcrop
Percentage of map unit: 3 percent

207—Anawalt-Raz complex, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,430 to 5,860 feet
Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Anawalt and similar soils: 45 percent
Raz and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Anawalt

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 10 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 10-12 PZ (R023XY214OR)

Typical profile
A—0 to 3 inches; gravelly clay loam
Bt1—3 to 7 inches; cobbly clay
Bt2—7 to 18 inches; cobbly clay
R—18 to 28 inches; bedrock

Characteristics of Raz

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Slope alluvium, colluvium, and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 10 percent
Depth to restrictive features: 10 to 18 inches to a strongly cemented duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 4 inches; very cobbly loam
Bw—4 to 12 inches; sandy clay loam

Bq—12 to 17 inches; sandy loam
Bkqm—17 to 30 inches; cemented material
2R—30 to 40 inches; bedrock

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Arness soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Locane soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

208—Anawalt-Rock outcrop complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,140 to 5,730 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Anawalt and similar soils: 60 percent
Rock outcrop: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Anawalt

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 10-12 PZ (R023XY214OR)

Typical profile
A—0 to 3 inches; stony loam
Bt1—3 to 7 inches; cobbly clay loam

Bt2—7 to 18 inches; cobbly clay loam
R—18 to 28 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 2 to 15 percent

Dissimilar Minor Components

Raz soils
Percentage of map unit: 4 percent
Landform: Lava plateaus

Ratto soils
Percentage of map unit: 4 percent
Landform: Fan remnants, lava plateaus

Embal soils
Percentage of map unit: 4 percent
Landform: Ephemeral stream terraces

Ninemile soils
Percentage of map unit: 3 percent
Landform: Lava plateaus

209—Atlow-Rock outcrop complex, 20 to 50 percent slopes

Map Unit Setting

General landscape: Mountains, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 5,100 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Atlow and similar soils: 75 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Atlow

Setting
Landform: Mountain slopes, hillslopes

Properties and qualities
Parent material: Residuum and colluvium derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 50 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY SLOPES 6-10 PZ (R024XY030OR)

Typical profile
A—0 to 3 inches; very cobbly loam
Bt—3 to 11 inches; very cobbly clay loam
R—11 to 21 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 30 to 50 percent

Dissimilar Minor Components

Kerrfield soils
Percentage of map unit: 5 percent
Landform: Hillslopes, mountain slopes

Skedaddle soils, droughty
Percentage of map unit: 3 percent
Landform: Mountain slopes

Skedaddle soils, south slopes
Percentage of map unit: 2 percent
Landform: Mountain slopes

210—Baconcamp-Clamp complex, 5 to 20 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,800 to 6,200 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 30 to 60 days

Map Unit Composition

Baconcamp and similar soils: 45 percent
Clamp and similar soils: 45 percent
Dissimilar minor components: 10 percent

Characteristics of Baconcamp

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as basalt
Slope range: 5 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 16-25 PZ (R023XY501OR)

Typical profile
A1—0 to 4 inches; very stony clay loam
A2—4 to 20 inches; very stony loam
A3—20 to 35 inches; very gravelly loam
2R—35 to 45 inches; bedrock

Characteristics of Clamp

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as basalt
Slope range: 5 to 20 percent
Depth to restrictive feature: 4 to 14 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: CLAYPAN 16-25 PZ (R023XY507OR)

Typical profile
A1—0 to 3 inches; very stony clay loam
A2—3 to 8 inches; very cobbly clay loam
A3—8 to 12 inches; very cobbly clay loam
R—12 to 22 inches; bedrock

Dissimilar Minor Components

Hackwood soils
Percentage of map unit: 5 percent
Landform: Escarpments

Rock outcrop
Percentage of map unit: 5 percent

211—Baconcamp-Rock outcrop complex, 3 to 30 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 6,000 to 6,400 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 30 to 60 days

Map Unit Composition

Baconcamp and similar soils: 75 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Baconcamp

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 16-25 PZ (R023XY501OR)

Typical profile
A1—0 to 4 inches; very cobbly loam
A2—4 to 20 inches; gravelly loam
A3—20 to 35 inches; very gravelly loam
2R—35 to 45 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 3 to 30 percent

Dissimilar Minor Components

Clamp soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

Hackwood soils
Percentage of map unit: 5 percent
Landform: Escarpments

212—Bluesters gravelly ashy loamy sand, 15 to 50 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,600 to 6,100 feet
Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bluesters and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Bluesters

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and cinders
Slope range: 15 to 50 percent
Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice (CPS211)

Typical profile
A1—0 to 4 inches; gravelly ashy loamy sand
A2—4 to 12 inches; ashy loamy sand
AC—12 to 23 inches; ashy loamy coarse sand
C—23 to 28 inches; gravelly ashy coarse sand
2C—28 to 60 inches; cinders

Dissimilar Minor Components

Henkle soils
Percentage of map unit: 5 percent
Landform: Volcanic cones

Wanoga soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

213—Bluesters gravelly ashy loamy sand, dry, 15 to 50 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,570 to 5,380 feet
Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bluesters, dry, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Bluesters, Dry

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and cinders
Slope range: 15 to 50 percent
Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/Festuca idahoensis* (CPS111)

Typical profile
A1—0 to 4 inches; gravelly ashy loamy sand
A2—4 to 12 inches; ashy loamy sand
AC—12 to 23 inches; ashy loamy coarse sand
C—23 to 28 inches; gravelly ashy coarse sand
2C—28 to 60 inches; cinders

Dissimilar Minor Components

Henkle soils
Percentage of map unit: 10 percent
Landform: Volcanic cones

Wanoga soils
Percentage of map unit: 3 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 2 percent

214—Boilout cobbly ashy fine sandy loam, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,340 to 4,910 feet
Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Boilout and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Boilout

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Eolian material mixed with volcanic ash over residuum derived from basalt or tuff
Slope range: 2 to 10 percent
Depth to restrictive features: 14 to 20 inches to a moderately cemented duripan, 18 to 38 inches to an indurated duripan, 24 to 63 inches to a very strongly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
A1—0 to 3 inches; cobbly ashy fine sandy loam
A2—3 to 6 inches; cobbly ashy very fine sandy loam
Btq—6 to 11 inches; ashy clay loam
Bkq—11 to 16 inches; extremely paragravelly ashy loam
Bkqm1—16 to 34 inches; cemented material
Bkqm2—34 to 59 inches; cemented material
Bkqm3—59 to 62 inches; cemented material

Dissimilar Minor Components

Rabbithills soils
Percentage of map unit: 10 percent
Landform: Lake terraces, fan remnants

Raz soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

215—Bonnick gravelly ashy loamy sand, 1 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,700 feet

Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bonnick and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Bonnick

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Pumiceous ash and volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 1 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHRUBBY PUMICE PLAINS 8-11 PZ (R023XY606OR)

Typical profile
A—0 to 3 inches; gravelly ashy loamy sand
AB—3 to 10 inches; gravelly ashy loamy sand
Bw—10 to 28 inches; gravelly ashy loamy sand
BC—28 to 42 inches; gravelly ashy loamy sand
2Bqb—42 to 45 inches; very gravelly loamy sand
2C—45 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lakebeds

Fort Rock soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Wegert soils
Percentage of map unit: 5 percent
Landform: Lava plains

216—Bonnick gravelly ashy sandy loam, 0 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,380 to 4,680 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bonnick and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Bonnick

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Pumiceous ash and volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 10-12 PZ (R023XY210OR)

Typical profile
A—0 to 3 inches; gravelly ashy sandy loam
AB—3 to 10 inches; gravelly ashy loamy sand
Bw—10 to 28 inches; gravelly ashy loamy sand
BC—28 to 42 inches; gravelly ashy loamy sand
2Bqb—42 to 45 inches; very gravelly loamy sand
2C—45 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Wegert soils
Percentage of map unit: 5 percent
Landform: Lava plains

Fort Rock soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Kunceider soils
Percentage of map unit: 3 percent
Landform: Lava plains

Rock outcrop
Percentage of map unit: 2 percent

217—Bonnick-Fort Rock complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,670 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bonnick and similar soils: 60 percent
Fort Rock and similar soils: 35 percent
Dissimilar minor component: 5 percent

Characteristics of Bonnick

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Pumiceous ash and volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 3 inches; ashy loamy sand
AB—3 to 10 inches; gravelly ashy loamy sand
Bw—10 to 28 inches; gravelly ashy loamy sand
BC—28 to 42 inches; gravelly ashy loamy sand
2Bqb—42 to 45 inches; very gravelly loamy sand
2C—45 to 60 inches; extremely gravelly sand

Characteristics of Fort Rock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 2 percent

Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 5 inches; ashy loamy sand
BA—5 to 16 inches; gravelly ashy loamy coarse sand
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Dissimilar Minor Component

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lakebeds

218—Bonnick-Fort Rock complex, 1 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,430 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bonnick and similar soils: 65 percent
Fort Rock and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Bonnick

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Pumiceous ash and volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 1 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: PUMICE FLAT 10-12 PZ (R023XY508OR)

Typical profile
A—0 to 3 inches; very gravelly ashy loamy coarse sand
AB—3 to 10 inches; gravelly ashy loamy sand
Bw—10 to 28 inches; gravelly ashy loamy sand
BC—28 to 42 inches; gravelly ashy loamy sand
2Bqb—42 to 45 inches; very gravelly loamy sand
2C—45 to 60 inches; extremely gravelly sand

Characteristics of Fort Rock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 1 to 8 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE FLAT 10-12 PZ (R023XY508OR)

Typical profile
A—0 to 5 inches; very gravelly ashy coarse sandy loam
BA—5 to 16 inches; gravelly ashy loamy coarse sand
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Wegert soils
Percentage of map unit: 8 percent
Landform: Lava plains

Crackedground soils
Percentage of map unit: 7 percent
Landform: Lava plains

219—Bonnick-Fort Rock complex, low precipitation, 1 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,330 to 4,600 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bonnick, low precipitation, and similar soils: 65 percent
Fort Rock, low precipitation, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Bonnick, Low Precipitation

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Pumiceous ash and volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 1 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STIPA FESCUE PLAINS 8-10 PZ (R023XY666OR)

Typical Profile
A—0 to 3 inches; very gravelly ashy loamy sand
AB—3 to 10 inches; gravelly ashy loamy sand
Bw—10 to 28 inches; gravelly ashy loamy sand
BC—28 to 42 inches; gravelly ashy loamy sand
2Bqb—42 to 45 inches; very gravelly loamy sand
2C—45 to 60 inches; extremely gravelly sand

Characteristics of Fort Rock, Low Precipitation

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 1 to 8 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STIPA FESCUE PLAINS 8-10 PZ (R023XY666OR)

Typical profile
A—0 to 5 inches; very gravelly ashy loam
BA—5 to 16 inches; gravelly ashy loamy coarse sand
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Kunceider soils
Percentage of map unit: 10 percent
Landform: Lava plains

Wegert soils
Percentage of map unit: 5 percent
Landform: Lava plains

220—Bonnick-Kunceider complex, 1 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,600 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bonnick and similar soils: 65 percent
Kunceider and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Bonnick

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Pumiceous ash and volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 1 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER HILLS 8-11 PZ (R010XA675OR)

Typical profile
A—0 to 3 inches; gravelly ashy loamy sand
AB—3 to 10 inches; gravelly ashy loamy sand
Bw—10 to 28 inches; gravelly ashy loamy sand
BC—28 to 42 inches; gravelly ashy loamy sand
2Bqb—42 to 45 inches; very gravelly loamy sand
2C—45 to 60 inches; extremely gravelly sand

Characteristics of Kunceider

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 1 to 10 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER HILLS 8-11 PZ (R010XA675OR)

Typical profile
A1—0 to 5 inches; ashy loamy sand
A2—5 to 9 inches; very cobbly ashy loamy sand
2Bw—9 to 14 inches; extremely gravelly ashy sandy loam
2R—14 to 24 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Glencabin soils
Percentage of map unit: 5 percent
Landform: Hillslopes, buttes

221—Bonnick-Morehouse complex, 0 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,300 to 4,330 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bonnick and similar soils: 60 percent
Morehouse and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Bonnick

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Pumiceous ash and volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 3 inches; ashy loamy sand
AB—3 to 10 inches; gravelly ashy loamy sand
Bw—10 to 28 inches; gravelly ashy loamy sand
BC—28 to 42 inches; gravelly ashy loamy sand
2Bqb—42 to 45 inches; very gravelly loamy sand
2C—45 to 60 inches; extremely gravelly sand

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 3 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE DUNES 8-10 PZ (R023XY610OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Rubble land
Percentage of map unit: 5 percent

Fort Rock soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Wegert soils
Percentage of map unit: 5 percent
Landform: Lava plains

222—Booth very stony loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,940 to 6,610 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Booth and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Booth

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium derived from tuff
Slope range: 2 to 15 percent
Depth to restrictive features: 20 to 40 inches to paralithic bedrock, 22 to 42 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY CLAYPAN 14-20 PZ (R021XY216OR)

Typical profile
A—0 to 4 inches; very stony loam
2Bt—4 to 24 inches; clay
3Cr—24 to 26 inches; bedrock
3R—26 to 36 inches; bedrock

Dissimilar Minor Components

Nuss soils
Percentage of map unit: 5 percent
Landform: Escarpments

Bullump soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Rock outcrop
Percentage of map unit: 5 percent

223—Booth-Rock outcrop complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 6,600 to 6,770 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Booth and similar soils: 45 percent
Rock outcrop: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Booth

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium derived from tuff
Slope range: 2 to 15 percent
Depth to restrictive features: 20 to 40 inches to paralithic bedrock, 22 to 42 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY CLAYPAN 14-20 PZ (R021XY216OR)

Typical profile
A—0 to 4 inches; very stony loam
2Bt—4 to 24 inches; clay
3Cr—24 to 26 inches; bedrock
3R—26 to 36 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 2 to 15 percent

Dissimilar Minor Components

Bullump soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Nuss soils
Percentage of map unit: 5 percent
Landform: Escarpments

Chewaucan soils
Percentage of map unit: 5 percent
Landform: Lake terraces

224—Borobey ashy fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,690 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Borobey and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Borobey

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 4 inches; ashy fine sandy loam
AB—4 to 12 inches; ashy loamy sand
Bq—12 to 50 inches; ashy loamy fine sand
C—50 to 68 inches; ashy loamy sand

Dissimilar Minor Components

Bonnick soils
Percentage of map unit: 10 percent
Landform: Lake terraces

Crackedground soils
Percentage of map unit: 5 percent
Landform: Lava plains

225—Borobey ashy loamy sand, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,490 to 4,820 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Borobey and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Borobey

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STIPA FESCUE BASIN 8-11 PZ (R023XY670OR)

Typical profile
A—0 to 4 inches; ashy loamy sand
AB—4 to 12 inches; ashy loamy sand
Bq—12 to 50 inches; ashy loamy fine sand
C—50 to 68 inches; ashy loamy sand

Dissimilar Minor Components

Goodtack soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Greenmountain soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

226—Borobey ashy sandy loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,520 to 5,130 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Borobey and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Borobey

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 10-12 PZ (R023XY210OR)

Typical profile
A—0 to 4 inches; ashy sandy loam
AB—4 to 12 inches; ashy loamy sand

Bq—12 to 50 inches; ashy loamy fine sand
C—50 to 68 inches; ashy loamy sand

Dissimilar Minor Components

Kunceider soils
Percentage of map unit: 10 percent
Landform: Lava plains

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

227—Borobey-Morehouse complex, 0 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,360 to 4,490 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Borobey and similar soils: 65 percent
Morehouse and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Borobey

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 4 inches; ashy sandy loam
AB—4 to 12 inches; ashy loamy sand
Bq—12 to 50 inches; ashy loamy fine sand
C—50 to 68 inches; ashy loamy sand

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 2 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE DUNES 8-10 PZ (R023XY610OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Sagehen soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rubble land
Percentage of map unit: 5 percent

228—Borobey-Oatmanflat ashy sandy loams, 1 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,470 to 4,810 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Borobey and similar soils: 50 percent
Oatmanflat and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Borobey

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 1 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A—0 to 4 inches; ashy sandy loam
AB—4 to 12 inches; ashy loamy sand
Bq—12 to 50 inches; ashy loamy fine sand
C—50 to 68 inches; ashy loamy sand

Characteristics of Oatmanflat

Setting
Landform: Stream terraces

Properties and qualities
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 40 to 60 inches to a strongly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 11.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A1—0 to 3 inches; ashy sandy loam
A2—3 to 12 inches; ashy sandy clay loam
Bw—12 to 28 inches; ashy coarse sandy loam
Btb—28 to 44 inches; ashy clay loam
Btqb—44 to 53 inches; gravelly ashy sandy clay loam
Bkqmb—53 to 64 inches; cemented material

Dissimilar Minor Components

Swalesilver soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Chancelakes soils
Percentage of map unit: 5 percent
Landform: Drainageways

229—Borobey-Overallflat complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 4,610 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Borobey and similar soils: 60 percent
Overallflat and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Borobey

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 4 inches; ashy loamy sand
AB—4 to 12 inches; ashy loamy sand
Bq—12 to 50 inches; ashy loamy fine sand
C—50 to 68 inches; ashy loamy sand

Characteristics of Overallflat

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very high (about 12 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY PONDED CLAY 6-10 PZ (R024XY007OR)

Typical profile
AE1—0 to 4 inches; ashy very fine sandy loam
AE2—4 to 7 inches; ashy silt loam
Bt—7 to 14 inches; ashy silty clay loam
Bkq—14 to 26 inches; ashy sandy clay loam
Cq—26 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lakebeds

Swalesilver soils
Percentage of map unit: 5 percent
Landform: Lake terraces

230—Brabble-Calderwood complex, 5 to 25 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 5,230 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Brabble and similar soils: 50 percent
Calderwood and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Brabble

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as andesite or basalt
Slope range: 5 to 25 percent
Depth to restrictive features: 20 to 40 inches to an indurated duripan, 30 to 50 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Available water capacity: Low (about 5.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 3 inches; gravelly sandy clay loam
A2—3 to 9 inches; sandy clay loam
Bw—9 to 26 inches; clay loam
Bk—26 to 33 inches; loam
2Bkqm—33 to 38 inches; cemented material
2R—38 to 48 inches; bedrock

Characteristics of Calderwood

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as andesite or basalt
Slope range: 5 to 25 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 2 inches; very gravelly sand
Bw—2 to 10 inches; very cobbly loam
2R—10 to 20 inches; bedrock

Dissimilar Minor Components

McConnel soils
Percentage of map unit: 5 percent
Landform: Pediments, beach terraces, lake terraces

Catlow soils
Percentage of map unit: 5 percent
Landform: Old beach terraces, old lake terraces

Rock outcrop
Percentage of map unit: 5 percent

231—Brace-Foleylake complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,700 to 6,200 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Brace and similar soils: 50 percent
Foleylake and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Brace

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive features: 20 to 37 inches to an indurated duripan, 22 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 10 inches; cobbly loam
Bt—10 to 14 inches; cobbly loam
Btkq—14 to 22 inches; cobbly clay loam
Bkqm—22 to 26 inches; cemented material
R—26 to 36 inches; bedrock

Characteristics of Foleylake

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Loess derived from mixed sources over residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive features: 21 to 25 inches to an indurated duripan, 22 to 30 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: THIN SURFACE 8-14 PZ (R024XY021OR)

Typical profile
A—0 to 2 inches; very cobbly loam
BA—2 to 8 inches; very cobbly loam
Bt—8 to 18 inches; gravelly clay
Btk—18 to 23 inches; gravelly clay loam
Bkqm—23 to 27 inches; cemented material
R—27 to 37 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 3 percent

Ninemile soils
Percentage of map unit: 3 percent
Landform: Lava plateaus

Reallis soils
Percentage of map unit: 2 percent
Landform: Alluvial fans, lake terraces

Chen soils
Percentage of map unit: 2 percent
Landform: Hillslopes

232—Bridgewell ashy loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 5,490 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bridgewell and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Bridgewell

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 30 inches (see Water Features table)
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Very high (about 16.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: LAKEBED (R023XY100OR)

Typical profile
A1—0 to 3 inches; ashy loam
A2—3 to 23 inches; ashy clay loam
C—23 to 36 inches; ashy silt loam
Ck—36 to 60 inches; ashy loam

Dissimilar Minor Components

Picturerock soils
Percentage of map unit: 10 percent
Landform: Lake terraces

Bunyard soils
Percentage of map unit: 5 percent
Landform: Lake terraces

233—Bridgewell ashy sandy loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,570 to 4,590 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bridgewell and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Bridgewell

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic rock with an influence of volcanic ash in the upper part
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 2 inches (see Water Features table)
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: PONDED CLAY (R023XY200OR)

Typical profile
A—0 to 2 inches; ashy sandy loam
B—2 to 12 inches; ashy loam
C—12 to 60 inches; very fine sandy loam

Dissimilar Minor Components

Playas
Percentage of map unit: 5 percent
Landform: Playas

Swalesilver soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Overallflat soils
Percentage of map unit: 5 percent
Landform: Lakebeds

234—Bullump-Rock outcrop-Nuss complex, 20 to 70 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 21—Klamath and Shasta Valleys and Basins
Elevation: 4,410 to 6,730 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bullump, south, and similar soils: 40 percent
Rock outcrop: 25 percent
Nuss, south, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Bullump, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as rhyolite, welded tuff, or basalt
Slope range: 30 to 50 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 14-18 PZ (R021XY308OR)

Typical profile
A1—0 to 3 inches; extremely gravelly loam
A2—3 to 11 inches; extremely gravelly loam
Bt—11 to 42 inches; very gravelly clay loam
C—42 to 60 inches; extremely gravelly loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 50 to 70 percent

Characteristics of Nuss, South

Setting
Landform: Hillslopes, escarpments

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 50 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: MAHOGANY ROCKLAND 10-20 PZ (R021XY403OR)

Typical profile
A—0 to 3 inches; stony loam
Bw—3 to 17 inches; clay loam
R—17 to 27 inches; bedrock

Dissimilar Minor Components

Booth soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Chewaucan soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Fitzwater soils
Percentage of map unit: 5 percent
Landform: Hillslopes

236—Bunyard ashy silt loam, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,310 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bunyard and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Bunyard

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 12 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 46
Available water capacity: Very high (about 12.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALINE BASIN 8-10 PZ (R024XY625OR)

Typical profile
AE—0 to 2 inches; ashy silt loam
Btn—2 to 6 inches; ashy silty clay loam
Btkn—6 to 16 inches; ashy clay loam
Bq—16 to 40 inches; ashy loamy very fine sand
C—40 to 60 inches; ashy very fine sandy loam

Dissimilar Minor Components

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Thornlake soils
Percentage of map unit: 5 percent
Landform: Lakebeds

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lakebeds

237—Cabinspring-Chesebro-Hayespring complex, 20 to 50 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,740 to 6,390 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Cabinspring and similar soils: 40 percent
Chesebro and similar soils: 30 percent
Hayespring and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Cabinspring

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyodacite or rhyolite
Slope range: 20 to 50 percent
Depth to restrictive feature: 30 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 12-16 PZ (R023XY302OR)

Typical profile
A1—0 to 8 inches; gravelly ashy loam
A2—8 to 12 inches; very gravelly ashy loam
AB—12 to 24 inches; very gravelly ashy loam
Bt1—24 to 30 inches; very gravelly ashy loam
2Bt2—30 to 36 inches; extremely stony clay
2R—36 to 46 inches; bedrock

Characteristics of Chesebro

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ashflow and colluvium derived from volcanic rock such as rhyodacite or rhyolite
Slope range: 20 to 50 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 8.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 4 inches; very cobbly ashy loam
A2—4 to 24 inches; very stony ashy loam
Bt—24 to 60 inches; very gravelly ashy loam

Characteristics of Hayespring

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium over residuum derived from volcanic rock such as rhyolite or rhyodacite
Slope range: 20 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 7.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY LOAM 10-12 PZ (R023XY516OR)

Typical profile
A—0 to 5 inches; cobbly ashy loam
AB—5 to 13 inches; cobbly ashy loam
Bt—13 to 37 inches; very cobbly ashy clay loam
2C—37 to 60 inches; very cobbly loamy coarse sand

Dissimilar Minor Components

Glassbutte soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

Rock outcrop
Percentage of map unit: 5 percent

Wildcatbutte soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

238—Calderwood-McConnel complex, 0 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,250 to 4,850 feet
Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Calderwood and similar soils: 65 percent
McConnel and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Calderwood

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as andesite or basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 2 inches; very gravelly sand
Bw—2 to 10 inches; very cobbly loam
2R—10 to 20 inches; bedrock

Characteristics of McConnel

Setting
Landform: Pediments, beach terraces, lake terraces

Properties and qualities
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 0 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
A—0 to 1 inch; very gravelly sandy loam
Bw—1 to 12 inches; sandy loam

2BC—12 to 18 inches; gravelly sandy loam
2Bk—18 to 60 inches; very gravelly sand

Dissimilar Minor Components

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

Nevador soils
Percentage of map unit: 5 percent
Landform: Fan remnants

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

239—Carryback very cobbly loam, 2 to 15 percent slopes, eroded

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,960 to 6,000 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Carryback, eroded, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Carryback, Eroded

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 2 inches; very cobbly loam
A2—2 to 8 inches; silty clay loam
2Bt—8 to 15 inches; clay

3C—15 to 33 inches; loam
3R—33 to 43 inches; bedrock

Dissimilar Minor Components

Erakatak soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Drakesflat soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

240—Carryback very stony clay loam, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,270 to 6,010 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Carryback and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Carryback

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 3 inches; very stony clay loam
A2—3 to 7 inches; silty clay loam
2Bt1—7 to 11 inches; clay
2Bt2—11 to 17 inches; clay

2Bt3—17 to 24 inches; clay
2R—24 to 34 inches; bedrock

Dissimilar Minor Components

Teguro soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Pernty soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

241—Carryback-Pearlwise complex, 3 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,890 to 5,910 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Carryback and similar soils: 55 percent
Pearlwise and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Carryback

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 3 inches; extremely cobbly clay loam
A2—3 to 7 inches; silty clay loam
2Bt1—7 to 11 inches; clay
2Bt2—11 to 17 inches; clay
2Bt3—17 to 24 inches; clay
2R—24 to 34 inches; bedrock

Characteristics of Pearlwise

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 6 inches; clay loam
A2—6 to 22 inches; clay loam
R—22 to 37 inches; bedrock

Dissimilar Minor Components

Lonely soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

242—Carvix silt loam, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 5,600 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Carvix and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Carvix

Setting
Landform: High stream terraces

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SWALE 10-14 PZ (R023XY202OR)

Typical profile
A—0 to 6 inches; silt loam
BA—6 to 19 inches; silt loam
Bt—19 to 60 inches; loam

Dissimilar Minor Components

Widowspring soils
Percentage of map unit: 10 percent
Landform: Stream terraces

Reallis soils
Percentage of map unit: 3 percent
Landform: Alluvial fans, lake terraces

Reluctan soils
Percentage of map unit: 2 percent
Landform: Hillslopes

243—Catlow gravelly sandy loam, 2 to 12 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 5,200 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Catlow and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Catlow

Setting
Landform: Old beach terraces, old lake terraces

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 2 to 12 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)

Typical profile
A—0 to 3 inches; gravelly sandy loam
Bw—3 to 21 inches; extremely cobbly fine sandy loam
Bq—21 to 30 inches; extremely gravelly sandy loam
C—30 to 60 inches; extremely gravelly sandy loam

Dissimilar Minor Components

Enko soils
Percentage of map unit: 3 percent
Landform: Swales, fan piedmonts

Turpin soils
Percentage of map unit: 3 percent
Landform: Lake terraces

Atlow soils
Percentage of map unit: 2 percent
Landform: Hillslopes

Rubble land
Percentage of map unit: 2 percent

244—Catlow-Davey complex, 2 to 30 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,550 to 4,810 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Catlow and similar soils: 50 percent
Davey and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Catlow

Setting
Landform: Old beach terraces, old lake terraces

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
A—0 to 3 inches; very gravelly sandy loam
Bw—3 to 21 inches; extremely cobbly fine sandy loam
Bq—21 to 30 inches; extremely gravelly sandy loam
C—30 to 60 inches; extremely gravelly sandy loam

Characteristics of Davey

Setting
Landform: Fan skirts, alluvial fans

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)

Typical profile
A—0 to 3 inches; loamy sand
Bw—3 to 23 inches; sandy loam
C—23 to 60 inches; loamy fine sand

Dissimilar Minor Components

Reallis soils
Percentage of map unit: 10 percent
Landform: Alluvial fans, lake terraces

Oreneva soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

245—Catnapp extremely cobbly loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,990 to 5,750 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Catnapp and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Catnapp

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed loess and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 30 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 20
Available water capacity: Low (about 3.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SODIC PLATEAU 8-10 PZ (R024XY651OR)

Typical profile
A—0 to 5 inches; extremely cobbly loam
AE—5 to 7 inches; fine sandy loam
Btn—7 to 14 inches; clay
Btkn—14 to 25 inches; clay loam
R—25 to 35 inches; bedrock

Dissimilar Minor Components

Deppy soils
Percentage of map unit: 10 percent
Landform: Lake terraces, fan remnants

Southcat soils
Percentage of map unit: 5 percent
Landform: Beach plains

246—Chancelakes-Silverash complex, 0 to 1 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 5,170 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Chancelakes and similar soils: 70 percent
Silverash and similar soils: 25 percent
Dissimilar minor component: 5 percent

Characteristics of Chancelakes

Setting
Landform: Drainageways

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic rock such as basalt or tuff with an influence of volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 1 inch (see Water Features table)
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Available water capacity: High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: LAKEBED (R023XY100OR)

Typical profile
AE—0 to 1 inch; ashy silt loam
Bt—1 to 10 inches; clay
Btk—10 to 29 inches; clay
Btkss—29 to 58 inches; clay
B′tk—58 to 63 inches; ashy sandy clay loam

Characteristics of Silverash

Setting
Landform: Closed depressions of lava plateaus

Properties and qualities
Parent material: Volcanic ash mixed with lacustrine and alluvial deposits derived from mixed volcanic rock

Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 8 inches (see Water Features table)
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: PONDED CLAY (R023XY200OR)

Typical profile
A—0 to 2 inches; ashy fine sandy loam
AE—2 to 8 inches; ashy loam
Bt—8 to 21 inches; clay
C—21 to 62 inches; sandy clay loam

Dissimilar Minor Component

Playas
Percentage of map unit: 5 percent
Landform: Playas

247—Chen-Erakatak-Lambring complex, 15 to 50 percent slopes

Map Unit Setting

General landscape: Mountains, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,100 to 6,830 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Chen and similar soils: 30 percent
Erakatak and similar soils: 30 percent
Lambring, north, and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Chen

Setting
Landform: Hillslopes, mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt
Slope range: 15 to 50 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW NORTH 12-16 PZ (R023XY312OR)

Typical profile
A1—0 to 2 inches; very cobbly loam
A2—2 to 6 inches; very cobbly loam
Bt—6 to 17 inches; very cobbly clay
R—17 to 27 inches; bedrock

Characteristics of Erakatak

Setting
Landform: Mountain slopes, hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as rhyodacite, rhyolite, or basalt with an influence of volcanic ash
Slope range: 20 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 12-16 PZ (R023XY302OR)

Typical profile
A1—0 to 3 inches; extremely gravelly ashy sandy loam
A2—3 to 11 inches; very gravelly ashy loam
Bt1—11 to 20 inches; very cobbly ashy clay loam
Bt2—20 to 27 inches; very cobbly ashy clay
R—27 to 37 inches; bedrock

Characteristics of Lambring, North

Setting
Landform: Hillslopes, mountain slopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as tuff, andesite, or basalt
Slope range: 20 to 50 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 5 inches; very cobbly sandy loam
A2—5 to 20 inches; very cobbly sandy loam
C—20 to 50 inches; extremely cobbly loamy sand
2R—50 to 60 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Carryback soils
Percentage of map unit: 3 percent
Landform: Lava plateaus

Carvix soils
Percentage of map unit: 2 percent
Landform: High stream terraces

248—Chesebro-Rock outcrop complex, 20 to 65 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,440 to 4,900 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Chesebro and similar soils: 55 percent
Rock outcrop: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Chesebro

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ashflow and colluvium derived from volcanic rock such as rhyodacite or rhyolite
Slope range: 20 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 8.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 4 inches; very cobbly ashy loam
A2—4 to 24 inches; very stony ashy loam
Bt—24 to 60 inches; very gravelly ashy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 65 percent

Dissimilar Minor Components

Derallo soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

Ludi soils
Percentage of map unit: 5 percent
Landform: Cinder cones

Glencabin soils
Percentage of map unit: 5 percent
Landform: Hillslopes, buttes

249—Cinderfall-Fort Rock-Kunceider complex, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,330 to 4,550 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Cinderfall and similar soils: 45 percent
Fort Rock and similar soils: 25 percent
Kunceider and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Cinderfall

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash over basaltic cinders
Slope range: 1 to 8 percent
Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 6
Available water capacity: Moderate (about 7.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE PLAINS 8-11 PZ (R023XY607OR)

Typical profile
A1—0 to 3 inches; ashy loamy sand
A2—3 to 21 inches; ashy loamy sand
2Ckq—21 to 62 inches; extremely gravelly ashy very fine sandy loam
2Ck—62 to 68 inches; extremely gravelly ashy very fine sand

Characteristics of Fort Rock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 1 to 5 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHRUBBY PUMICE PLAINS 8-11 PZ (R023XY606OR)

Typical profile
A—0 to 5 inches; very gravelly ashy loamy sand
BA—5 to 16 inches; gravelly ashy loamy coarse sand
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Characteristics of Kunceider

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 4 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE PLAINS 8-11 PZ (R023XY607OR)

Typical profile
A1—0 to 5 inches; cobbly ashy loamy sand
A2—5 to 9 inches; very cobbly ashy loamy sand
2Bw—9 to 14 inches; extremely gravelly ashy sandy loam
2R—14 to 24 inches; bedrock

Dissimilar Minor Components

Wegert soils
Percentage of map unit: 10 percent
Landform: Lava plains

Bonnick soils
Percentage of map unit: 5 percent
Landform: Lake terraces

250—Cleavage-Ninemile-Westbutte complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,700 to 6,120 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Cleavage and similar soils: 35 percent
Ninemile and similar soils: 30 percent
Westbutte and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Cleavage

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Residuum derived from volcanic rock such as welded ashflow tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: CLAYPAN 14-20 PZ (R021XY215OR)

Typical profile
A—0 to 7 inches; very cobbly loam
Bt—7 to 11 inches; very cobbly clay loam
R—11 to 21 inches; bedrock

Characteristics of Ninemile

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: THIN SURFACE CLAYPAN 10-16 PZ (R023XY218OR)

Typical profile
A—0 to 2 inches; cobbly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Characteristics of Westbutte

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 14-18 PZ (R021XY212OR)

Typical profile
A1—0 to 3 inches; very stony loam
A2—3 to 11 inches; very cobbly loam
Bw—11 to 21 inches; extremely cobbly clay loam
R—21 to 31 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

251—Cleet very gravelly sandy loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,430 to 5,000 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Cleet and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cleet

Setting
Landform: Fan remnants

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: 14 to 20 inches to a very strongly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 2 inches; very gravelly sandy loam
Bt—2 to 15 inches; very gravelly loam
Bkqm—15 to 60 inches; cemented material

Dissimilar Minor Components

Corral soils
Percentage of map unit: 4 percent
Landform: Lava plateaus

Embal soils
Percentage of map unit: 4 percent
Landform: Ephemeral stream terraces

Mesman soils
Percentage of map unit: 4 percent
Landform: Lake terraces

Raz soils
Percentage of map unit: 3 percent
Landform: Lava plateaus

252—Clurde loam, 0 to 6 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,660 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Clurde and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Clurde

Setting
Landform: Alluvial fans, inset fans, fan remnants, dissected terraces

Properties and qualities
Parent material: Volcanic ash over alluvium derived from mixed volcanic rock
Slope range: 0 to 6 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 7
Available water capacity: High (about 9.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY FLOODPLAIN (R024XY004OR)

Typical profile
A—0 to 3 inches; loam
Bw—3 to 12 inches; silt loam

2Bkq—12 to 38 inches; loam
2C—38 to 62 inches; loam

Dissimilar Minor Components

Hinton soils
Percentage of map unit: 10 percent
Landform: Lake terraces

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

253—Clurde-Toll complex, 0 to 12 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,420 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Clurde and similar soils: 70 percent
Toll and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Clurde

Setting
Landform: Alluvial fans, dissected terraces

Properties and qualities
Parent material: Volcanic ash over alluvium derived from mixed volcanic rock
Slope range: 0 to 4 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 7
Available water capacity: High (about 9.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY FLOODPLAIN (R024XY004OR)

Typical profile
A—0 to 3 inches; silt loam
Bw—3 to 12 inches; silt loam
2Bkq—12 to 38 inches; loam
2C—38 to 62 inches; loam

Characteristics of Toll

Setting
Landform: Alluvial fans

Properties and qualities
Parent material: Alluvium and eolian sand deposits derived from mixed volcanic rock
Slope range: 2 to 12 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DUNES (R024XY110OR)

Typical profile
A—0 to 15 inches; loamy sand
C—15 to 40 inches; loamy sand
Cq—40 to 60 inches; gravelly coarse sand

Dissimilar Minor Components

Enko soils
Percentage of map unit: 3 percent
Landform: Swales, fan piedmonts

Catlow soils
Percentage of map unit: 3 percent
Landform: Old beach terraces, old lake terraces

Turpin soils
Percentage of map unit: 2 percent
Landform: Lake terraces

Morehouse soils
Percentage of map unit: 2 percent
Landform: Dunes on lakebeds

254—Connleyhills ashy coarse sandy loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,930 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Connleyhills and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Connleyhills

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE PLAINS 8-11 PZ (R010XA659OR)

Typical profile
A1—0 to 4 inches; ashy coarse sandy loam
A2—4 to 11 inches; ashy coarse sandy loam
2Bt1—11 to 15 inches; very cobbly ashy clay loam
2Bt2—15 to 22 inches; very cobbly clay
2Bt3—22 to 29 inches; clay
3Bt4—29 to 32 inches; very stony ashy clay loam
3R—32 to 42 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Dune land
Percentage of map unit: 5 percent
Landform: Dunes on dunefields

255—Connleyhills cobbly ashy loam, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,750 to 5,140 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Connleyhills and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Connleyhills

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY LOAM 10-12 PZ (R023XY516OR)

Typical profile
A1—0 to 4 inches; cobbly ashy loam
A2—4 to 11 inches; ashy coarse sandy loam
2Bt1—11 to 15 inches; very cobbly ashy clay loam
2Bt2—15 to 22 inches; very cobbly clay
2Bt3—22 to 29 inches; clay
3Bt4—29 to 32 inches; very stony ashy clay loam
3R—32 to 42 inches; bedrock

Dissimilar Minor Components

Hayespring soils
Percentage of map unit: 4 percent
Landform: Lava plateaus

Kunceider soils
Percentage of map unit: 4 percent
Landform: Lava plains

Moonbeam soils
Percentage of map unit: 4 percent
Landform: Lava plateaus

Oatmanflat soils
Percentage of map unit: 3 percent
Landform: Swales of lava plateaus

256—Cooperdraw-Fertaline complex, 1 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,810 to 5,590 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Cooperdraw and similar soils: 50 percent
Fertaline and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Cooperdraw

Setting
Landform: Fan remnants

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 2 inches; very gravelly sandy loam
AB—2 to 8 inches; gravelly loam
Btk—8 to 14 inches; very cobbly clay loam
Bkq—14 to 24 inches; very cobbly sandy loam
Bkqm—24 to 60 inches; cemented material

Characteristics of Fertaline

Setting
Landform: Fan remnants

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 1 to 5 percent
Depth to restrictive feature: 20 to 30 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Available water capacity: Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW GRAVELLY LOAM 10-12 PZ (R023XY215OR)

Typical profile
A—0 to 2 inches; very cobbly sandy loam
E—2 to 7 inches; gravelly sandy clay loam
Bt—7 to 19 inches; clay
Bkq—19 to 26 inches; gravelly sandy clay loam
Bkqm—26 to 28 inches; cemented material

Dissimilar Minor Components

Rubble land
Percentage of map unit: 5 percent

Carvix soils
Percentage of map unit: 5 percent
Landform: High stream terraces

Ratto soils
Percentage of map unit: 5 percent
Landform: Fan remnants

257—Corral fine sandy loam, low precipitation, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 5,230 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Corral, low precipitation, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Corral, Low Precipitation

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
A1—0 to 3 inches; fine sandy loam
A2—3 to 5 inches; sandy loam
Bt—5 to 13 inches; sandy clay loam
Crk—13 to 23 inches; bedrock

Dissimilar Minor Components

Tumtum soils
Percentage of map unit: 5 percent
Landform: Lake terraces, fan remnants

McConnel soils
Percentage of map unit: 5 percent
Landform: Pediments, beach terraces, lake terraces

Drakesflat soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

258—Coztur sandy loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 5,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Coztur and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Coztur

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 13 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 3 inches; sandy loam
Bt1—3 to 7 inches; very cobbly clay loam

Bt2—7 to 13 inches; clay loam
R—13 to 23 inches; bedrock

Dissimilar Minor Components

Raz soils
Percentage of map unit: 8 percent
Landform: Lava plateaus

Brace soils
Percentage of map unit: 7 percent
Landform: Lava plateaus

259—Crackedground cobbly ashy loamy sand, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,450 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Crackedground and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Crackedground

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY LOAM 10-12 PZ (R023XY213OR)

Typical profile
A1—0 to 5 inches; cobbly ashy loamy sand
A2—5 to 13 inches; very cobbly ashy sandy loam
Bw—13 to 38 inches; extremely stony ashy sandy loam
Bq—38 to 43 inches; extremely stony ashy sandy loam
R—43 to 53 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Giranch soils
Percentage of map unit: 5 percent
Landform: Fan remnants

260—Crackedground cobbly ashy loamy sand, 1 to 6 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,770 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Crackedground and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Crackedground

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 6 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE 9-12 PZ (R023XY515OR)

Typical profile
A1—0 to 5 inches; cobbly ashy loamy sand
A2—5 to 13 inches; very cobbly ashy sandy loam
Bw—13 to 38 inches; extremely stony ashy sandy loam
Bq—38 to 43 inches; extremely stony ashy sandy loam
R—43 to 53 inches; bedrock

Dissimilar Minor Components

Jacksplace soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Fort Rock soils
Percentage of map unit: 5 percent
Landform: Lake terraces

261—Crackedground-Kunceider complex, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,340 to 4,500 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Crackedground and similar soils: 60 percent
Kunceider and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Crackedground

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE PLAINS 8-11 PZ (R023XY607OR)

Typical profile
A1—0 to 5 inches; stony ashy loamy sand
A2—5 to 13 inches; very cobbly ashy sandy loam
Bw—13 to 38 inches; extremely stony ashy sandy loam
Bq—38 to 43 inches; extremely stony ashy sandy loam
R—43 to 53 inches; bedrock

Characteristics of Kunceider

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt

Slope range: 1 to 5 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE FLAT 8-10 PZ (R010XA027OR)

Typical profile
A1—0 to 5 inches; very stony ashy sandy loam
A2—5 to 9 inches; very cobbly ashy loamy sand
2Bw—9 to 14 inches; extremely gravelly ashy sandy loam
2R—14 to 24 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 8 percent

Senra soils
Percentage of map unit: 7 percent
Landform: Lava plateaus

262—Crackedground-Milcan complex, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,340 to 4,670 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Crackedground and similar soils: 60 percent
Milcan and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Crackedground

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE PLAINS 8-11 PZ (R023XY607OR)

Typical profile
A1—0 to 5 inches; stony ashy loamy sand
A2—5 to 13 inches; very cobbly ashy sandy loam
Bw—13 to 38 inches; extremely stony ashy sandy loam
Bq—38 to 43 inches; extremely stony ashy sandy loam
R—43 to 53 inches; bedrock

Characteristics of Milcan

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE PLAINS 8-11 PZ (R023XY607OR)

Typical profile
A1—0 to 2 inches; cobbly ashy loamy sand
A2—2 to 10 inches; ashy sandy loam
Bq—10 to 34 inches; ashy loamy fine sand
Bqm—34 to 44 inches; cemented material

Dissimilar Minor Components

Wegert soils
Percentage of map unit: 8 percent
Landform: Lava plains

Bonnick soils
Percentage of map unit: 7 percent
Landform: Lake terraces

263—Crackedground-Milcan-Rock outcrop complex, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,570 feet
Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Crackedground and similar soils: 45 percent
Milcan and similar soils: 25 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Crackedground

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE FLAT 8-10 PZ (R010XA027OR)

Typical profile
A1—0 to 5 inches; very cobbly ashy sandy loam
A2—5 to 13 inches; very cobbly ashy sandy loam
Bw—13 to 38 inches; extremely stony ashy sandy loam
Bq—38 to 43 inches; extremely stony ashy sandy loam
R—43 to 53 inches; bedrock

Characteristics of Milcan

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 1 to 2 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE FLAT 8-10 PZ (R010XA027OR)

Typical profile
A1—0 to 2 inches; ashy sand
A2—2 to 10 inches; ashy sandy loam

Bq—10 to 34 inches; ashy loamy fine sand
Bqm—34 to 44 inches; cemented material

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 1 to 5 percent

Dissimilar Minor Components

Wegert soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

264—Crackedground-Wegert complex, 1 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,380 to 4,500 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Crackedground and similar soils: 50 percent
Wegert and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Crackedground

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE FLAT 10-12 PZ (R023XY508OR)

Typical profile
A1—0 to 5 inches; gravelly ashy loamy sand
A2—5 to 13 inches; very cobbly ashy sandy loam

Bw—13 to 38 inches; extremely stony ashy sandy loam
Bq—38 to 43 inches; extremely stony ashy sandy loam
R—43 to 53 inches; bedrock

Characteristics of Wegert

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE FLAT 10-12 PZ (R023XY508OR)

Typical profile
A1—0 to 2 inches; gravelly ashy loamy sand
A2—2 to 6 inches; ashy loamy sand
Bw—6 to 27 inches; ashy loamy sand
2C—27 to 31 inches; extremely cobbly ashy loamy sand
2R—31 to 41 inches; bedrock

Dissimilar Minor Components

Bonnick soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

Weglike soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

266—Deppy-Rubble land complex, 30 to 50 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 4,650 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Deppy and similar soils: 60 percent
Rubble land: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Deppy

Setting
Landform: Fan remnants

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 30 to 50 percent
Depth to restrictive feature: 10 to 20 inches to a strongly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 10
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DESERT LOAM 6-10 PZ (R024XY015OR)

Typical profile
A—0 to 4 inches; extremely stony loam
Bt—4 to 11 inches; clay loam
Bkqm—11 to 24 inches; cemented material
2Ck—24 to 60 inches; gravelly sandy loam

Characteristics of Rubble Land

Description of areas: Accumulations of loose, angular volcanic rock fragments
Slope range: 30 to 50 percent

Dissimilar Minor Components

McNye soils
Percentage of map unit: 5 percent
Landform: Bedrock-controlled lake terrace escarpments

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

Mesman soils
Percentage of map unit: 5 percent
Landform: Lake terraces

267—Deppy-Tumtum complex, 5 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,260 to 5,160 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Deppy and similar soils: 45 percent
Tumtum and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Deppy

Setting
Landform: Lake terraces, fan remnants

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 5 to 15 percent
Depth to restrictive feature: 10 to 20 inches to a strongly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 10
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DESERT LOAM 6-10 PZ (R024XY015OR)

Typical profile
A—0 to 4 inches; very cobbly loam
Bt—4 to 11 inches; clay loam
Bkqm—11 to 24 inches; cemented material
2Ck—24 to 60 inches; gravelly sandy loam

Characteristics of Tumtum

Setting
Landform: Lake terraces, fan remnants

Properties and qualities
Parent material: Old alluvium derived from mixed volcanic rock
Slope range: 5 to 15 percent
Depth to restrictive feature: 9 to 18 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 3 inches; cobbly loam
Bt—3 to 14 inches; clay loam
Bkqm—14 to 22 inches; cemented material
2Ck—22 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Raz soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Brace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

268—Derallo-Chesebro association, 15 to 35 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,750 to 5,280 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Derallo and similar soils: 65 percent
Chesebro and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Derallo

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite
Slope range: 15 to 35 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)

Typical profile
A1—0 to 1 inch; very gravelly ashy loam
A2—1 to 12 inches; extremely cobbly ashy loam

Bt1—12 to 36 inches; extremely gravelly ashy loam
Bt2—36 to 41 inches; very gravelly ashy fine sandy loam
Cr—41 to 51 inches; bedrock

Characteristics of Chesebro

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ashflow and colluvium derived from volcanic rock such as rhyodacite or rhyolite
Slope range: 15 to 35 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 8.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)

Typical profile
A1—0 to 4 inches; very cobbly ashy loam
A2—4 to 24 inches; very stony ashy loam
Bt—24 to 60 inches; very gravelly ashy loam

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Jacksplace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus, hillslopes

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

269—Derallo-Rock outcrop complex, 15 to 50 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,470 to 5,060 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Derallo, north, and similar soils: 50 percent
Rock outcrop: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Derallo, North

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite
Slope range: 15 to 50 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)

Typical profile
A1—0 to 1 inch; stony ashy very fine sand
A2—1 to 12 inches; extremely cobbly ashy loam
Bt1—12 to 36 inches; extremely gravelly ashy loam
Bt2—36 to 41 inches; very gravelly ashy fine sandy loam
Cr—41 to 51 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 50 percent

Dissimilar Minor Components

Glencabin soils
Percentage of map unit: 5 percent
Landform: Hillslopes, buttes

Ludi soils
Percentage of map unit: 5 percent
Landform: Cinder cones

Glassbutte soils
Percentage of map unit: 3 percent
Landform: Cinder cones

Leevan soils
Percentage of map unit: 2 percent
Landform: Hillslopes, mountain slopes

270—Derallo-Rock outcrop complex, 20 to 60 percent south slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 4,750 feet
Mean annual precipitation: 11 to 13 inches

Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Derallo, south, and similar soils: 60 percent
Rock outcrop: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Derallo, South

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite
Slope range: 20 to 60 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY SOUTH SLOPES 11-13 PZ (R023XY301OR)

Typical profile
A1—0 to 1 inch; very stony ashy fine sand
A2—1 to 12 inches; extremely cobbly ashy loam
Bt1—12 to 36 inches; extremely gravelly ashy loam
Bt2—36 to 41 inches; very gravelly ashy fine sandy loam
Cr—41 to 51 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 60 percent

Dissimilar Minor Components

Senra soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Dunres soils
Percentage of map unit: 5 percent
Landform: Hillslopes

271—Diablopeak-Yankeewell complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 6,020 feet

Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Diablopeak and similar soils: 55 percent
Yankeewell and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Diablopeak

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Mixed eolian deposits over residuum derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Depth to restrictive feature: 16 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A1—0 to 2 inches; very cobbly fine sandy loam
A2—2 to 6 inches; cobbly fine sandy loam
E—6 to 7 inches; fine sandy loam
2Btn—7 to 12 inches; clay
2Btkn—12 to 19 inches; sandy clay
2R—19 to 29 inches; bedrock

Characteristics of Yankeewell

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Mixed eolian deposits over residuum derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Depth to restrictive features: 10 to 20 inches to a strongly cemented duripan, 18 to 26 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 20
Available water capacity: Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: HIGH SODIC HILLS 8-11 PZ (R024XY648OR)

Typical profile
A—0 to 3 inches; very cobbly sandy loam
E—3 to 6 inches; gravelly loam
2Btkn—6 to 11 inches; clay loam
2Bkqm—11 to 25 inches; cemented material
2R—25 to 35 inches; bedrock

Dissimilar Minor Components

Reallis soils
Percentage of map unit: 4 percent
Landform: Alluvial fans

Locolake soils
Percentage of map unit: 4 percent
Landform: Lava plateaus, hillslopes

Noidee soils
Percentage of map unit: 4 percent
Landform: Lava plateaus, hillslopes

Rock outcrop
Percentage of map unit: 3 percent

272—Drakesflat loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,500 to 5,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Drakesflat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Drakesflat

Setting
Landform: Dissected lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 17
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYEY 10-12 PZ (R023XY220OR)

Typical profile
A1—0 to 2 inches; loam
A2—2 to 7 inches; loam
2Bt—7 to 16 inches; cobbly clay
2Bk—16 to 22 inches; cobbly clay loam
2R—22 to 32 inches; bedrock

Dissimilar Minor Components

Reallis soils
Percentage of map unit: 5 percent
Landform: Alluvial fans, lake terraces

Erakatak soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Ratto soils
Percentage of map unit: 5 percent
Landform: Fan remnants, lava plateaus

273—Drakesflat loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,460 to 4,990 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Drakesflat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Drakesflat

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 17
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYEY 10-12 PZ (R023XY220OR)

Typical profile
A1—0 to 2 inches; loam
A2—2 to 7 inches; loam
2Bt—7 to 16 inches; cobbly clay
2Bk—16 to 22 inches; cobbly clay loam
2R—22 to 32 inches; bedrock

Dissimilar Minor Components

Ratto soils
Percentage of map unit: 5 percent
Landform: Fan remnants, lava plateaus

Reallis soils
Percentage of map unit: 5 percent
Landform: Alluvial fans, lake terraces

Erakatak soils
Percentage of map unit: 5 percent
Landform: Hillslopes

274—Dune land, 5 to 50 percent slopes

Map Unit Setting

General landscape: Dunefields
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,560 to 4,780 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dune land: 90 percent
Dissimilar minor component: 10 percent

Characteristics of Dune Land

Setting
Landform: Dunes

Properties and qualities
Parent material: Eolian sand deposits derived from mixed volcanic rock and volcanic ash
Slope range: 5 to 50 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C—0 to 60 inches; fine sand

Dissimilar Minor Component

Rubble land
Percentage of map unit: 10 percent

275—Dune land-Fossilake-Salhouse complex, 0 to 30 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,290 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dune land: 35 percent
Fossilake and similar soils: 30 percent
Salhouse and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Dune Land

Setting
Landform: Dunes of dunefields

Properties and qualities
Parent material: Eolian sand deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C—0 to 60 inches; fine sand

Characteristics of Fossilake

Setting
Landform: Depressions of lakebeds

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Strongly saline (about 23 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 65
Available water capacity: Very high (about 13.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: THIN SURFACE SODIC FLAT (R024XY614OR)

Typical profile
Anz1—0 to 1 inch; ashy fine sandy loam
Anz2—1 to 3 inches; ashy very fine sandy loam
Bn—3 to 15 inches; ashy silt loam
Cn—15 to 31 inches; stratified ashy loamy sand to ashy loam
Bknb—31 to 43 inches; ashy loam
BCgb—43 to 66 inches; ashy silt loam

Characteristics of Salhouse

Setting
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from volcanic ash and mixed volcanic rock
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
C—5 to 42 inches; ashy loamy sand
Bwb—42 to 61 inches; ashy silt loam

Dissimilar Minor Components

Abert soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Tonor soils
Percentage of map unit: 5 percent
Landform: Lakebeds

276—Dune land-Morehouse complex, 1 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,290 to 4,380 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dune land: 50 percent
Morehouse and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Dune Land

Setting
Landform: Dunes of dunefields

Properties and qualities
Parent material: Eolian sand deposits derived from mixed volcanic rock and volcanic ash
Slope range: 1 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C—0 to 60 inches; fine sand

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits

Slope range: 1 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE DUNES 8-10 PZ (R023XY610OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Rubble land
Percentage of map unit: 10 percent

Firelake soils
Percentage of map unit: 5 percent
Landform: Structural benches, hillslopes

277—Dune land-Salhouse complex, 2 to 35 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,290 to 4,480 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dune land: 45 percent
Salhouse and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Dune Land

Setting
Landform: Dunes of dunefields

Properties and qualities
Parent material: Eolian sand deposits derived from mixed volcanic rock and volcanic ash
Slope range: 2 to 35 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C—0 to 60 inches; fine sand

Characteristics of Salhouse

Setting
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from volcanic ash and mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Moderate (about 9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 5 inches; ashy sand
C—5 to 42 inches; ashy loamy sand
Bwb—42 to 61 inches; ashy silt loam

Dissimilar Minor Components

Rubble land
Percentage of map unit: 10 percent

Playas
Percentage of map unit: 5 percent
Landform: Playas

278—Dunres cobbly ashy sandy loam, 1 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,380 to 5,260 feet
Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dunres and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Dunres

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 20 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY LOAM 10-12 PZ (R023XY516OR)

Typical profile
A—0 to 4 inches; cobbly ashy sandy loam
Bt1—4 to 8 inches; ashy sandy clay loam
2Bt2—8 to 19 inches; clay
2Bqm1—19 to 32 inches; cemented material
2Bqm2—32 to 56 inches; cemented material
2R—56 to 60 inches; bedrock

Dissimilar Minor Components

Senra soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Lastcall soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

279—Dunres cobbly ashy sandy loam, thick surface, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,930 feet

Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dunres, thick surface, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Dunres, Thick Surface

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 20 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE 9-12 PZ (R023XY515OR)

Typical profile
A—0 to 4 inches; cobbly ashy sandy loam
Bt1—4 to 8 inches; ashy sandy clay loam
2Bt2—8 to 19 inches; clay
2Bqm1—19 to 32 inches; cemented material
2Bqm2—32 to 56 inches; cemented material
2R—56 to 60 inches; bedrock

Dissimilar Minor Components

Moonbeam soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

280—Dunres stony ashy fine sandy loam, 1 to 6 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 5,200 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dunres and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Dunres

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 6 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 20 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A—0 to 4 inches; stony ashy fine sandy loam
Bt1—4 to 8 inches; ashy sandy clay loam
2Bt2—8 to 19 inches; clay
2Bqm1—19 to 32 inches; cemented material
2Bqm2—32 to 56 inches; cemented material
2R—56 to 60 inches; bedrock

Dissimilar Minor Components

Goodtack soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

281—Dunres-Henkle complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,430 to 4,960 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dunres and similar soils: 60 percent
Henkle and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Dunres

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 20 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SR DRY PINE 14-16 PZ (R010XC082OR)

Typical profile
A—0 to 4 inches; cobbly ashy fine sandy loam
Bt1—4 to 8 inches; ashy sandy clay loam
2Bt2—8 to 19 inches; clay
2Bqm1—19 to 32 inches; cemented material
2Bqm2—32 to 56 inches; cemented material
2R—56 to 60 inches; bedrock

Characteristics of Henkle

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PINE-MAHOGANY-FESCUE 16-20 PZ (R021XY411OR)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; gravelly ashy coarse sandy loam
A2—6 to 16 inches; gravelly ashy loam
Bw—16 to 20 inches; extremely bouldery ashy loam
2R—20 to 30 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Norcross soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

282—Dunres-Moonbeam complex, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,640 to 4,960 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dunres and similar soils: 60 percent
Moonbeam and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Dunres

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 20 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A—0 to 4 inches; cobbly ashy fine sandy loam
Bt1—4 to 8 inches; ashy sandy clay loam
2Bt2—8 to 19 inches; clay
2Bqm1—19 to 32 inches; cemented material
2Bqm2—32 to 56 inches; cemented material
2R—56 to 60 inches; bedrock

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; stony ashy fine sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Lastcall soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Borobey soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

283—Dunres-Moonbeam-Nuss complex, 1 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,740 to 5,000 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dunres and similar soils: 40 percent
Moonbeam and similar soils: 25 percent
Nuss and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Dunres

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 10 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 20 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JD SHRUBBY MOUNTAIN 12-16 PZ (R010XB028OR)

Typical profile
A—0 to 4 inches; very cobbly ashy loam
Bt1—4 to 8 inches; ashy sandy clay loam
2Bt2—8 to 19 inches; clay
2Bqm1—19 to 32 inches; cemented material
2Bqm2—32 to 56 inches; cemented material
2R—56 to 60 inches; bedrock

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: THIN SURFACE CLAYPAN 10-16 PZ (R023XY218OR)

Typical profile
A1—0 to 3 inches; extremely cobbly ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Characteristics of Nuss

Setting
Landform: Escarpments

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: MAHOGANY ROCKLAND 10-20 PZ (R021XY403OR)

Typical profile
A—0 to 3 inches; extremely stony sandy loam
Bw—3 to 17 inches; clay loam
R—17 to 27 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Lapham soils
Percentage of map unit: 5 percent
Landform: Lake terraces

284—Dunres-Murlose-Nuss complex, 1 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,800 to 5,070 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dunres and similar soils: 40 percent
Murlose and similar soils: 25 percent
Nuss and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Dunres

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 20 to 60 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JD SHRUBBY MOUNTAIN 12-16 PZ (R010XB028OR)

Typical profile
A—0 to 4 inches; very cobbly ashy loam
Bt1—4 to 8 inches; ashy sandy clay loam
2Bt2—8 to 19 inches; clay
2Bqm1—19 to 32 inches; cemented material
2Bqm2—32 to 56 inches; cemented material
2R—56 to 60 inches; bedrock

Characteristics of Murlose

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 15 to 19 inches to a strongly cemented duripan, 20 to 24 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER DRY PINE 14-16 PZ (R021XY508OR)

Typical profile
A1—0 to 3 inches; gravelly ashy sandy loam
A2—3 to 11 inches; cobbly ashy sandy loam
Bt—11 to 19 inches; cobbly ashy sandy clay loam
Bqm—19 to 22 inches; cemented material
R—22 to 32 inches; bedrock

Characteristics of Nuss

Setting
Landform: Escarpments

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 20 percent
Depth to restrictive features: 14 to 20 inches to paralithic bedrock, 16 to 24 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: MAHOGANY ROCKLAND 10-20 PZ (R021XY403OR)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; extremely stony ashy sandy loam
Bw—2 to 8 inches; cobbly ashy clay loam
C—8 to 15 inches; extremely cobbly ashy sandy loam
Cr—15 to 19 inches; bedrock
R—19 to 29 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Lapham soils
Percentage of map unit: 5 percent
Landform: Lake terraces

285—Dunres-Moonbeam complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,430 to 4,740 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dunres and similar soils: 65 percent
Moonbeam and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Dunres

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 10 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 20 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY LOAM 10-12 PZ (R023XY516OR)

Typical profile
A—0 to 4 inches; very cobbly ashy sandy loam
Bt1—4 to 8 inches; ashy sandy clay loam
2Bt2—8 to 19 inches; clay
2Bqm1—19 to 32 inches; cemented material
2Bqm2—32 to 56 inches; cemented material
2R—56 to 60 inches; bedrock

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; extremely stony ashy sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

286—Dunres-Norcross complex, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 5,110 feet
Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Dunres and similar soils: 40 percent
Norcross, cobbly ashy loam surface, and similar soils: 30 percent
Norcross, very cobbly ashy fine sandy loam surface, and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Dunres

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 20 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY LOAM 10-12 PZ (R023XY516OR)

Typical profile
A—0 to 4 inches; very cobbly ashy loam
Bt1—4 to 8 inches; ashy sandy clay loam
2Bt2—8 to 19 inches; clay
2Bqm1—19 to 32 inches; cemented material
2Bqm2—32 to 56 inches; cemented material
2R—56 to 60 inches; bedrock

Characteristics of Norcross, Cobbly Ashy Loam Surface

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 14 to 19 inches to an indurated duripan, 16 to 21 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER CLAYPAN 12-16 PZ (R021XY505OR)

Typical profile
A1—0 to 3 inches; cobbly ashy loam
A2—3 to 6 inches; cobbly ashy loam
2Bt—6 to 19 inches; clay
2Bqm—19 to 21 inches; cemented material
2R—21 to 31 inches; bedrock

Characteristics of Norcross, Very Cobbly Ashy Fine Sandy Loam Surface

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 14 to 19 inches to an indurated duripan, 16 to 21 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW STONY 10-20 PZ (R021XY204OR)

Typical profile
A1—0 to 3 inches; very cobbly ashy fine sandy loam
A2—3 to 6 inches; cobbly ashy loam
2Bt—6 to 19 inches; clay
2Bqm—19 to 21 inches; cemented material
2R—21 to 31 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 5 percent

Senra soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

287—Edemaps-Pernty-Rock outcrop complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 5,220 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Edemaps and similar soils: 40 percent
Pernty and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Edemaps

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Residuum derived from volcanic rock such as rhyolite
Slope range: 2 to 20 percent
Depth to restrictive features: 21 to 24 inches to a very strongly cemented duripan, 23 to 30 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 3 inches; gravelly sandy loam
A2—3 to 10 inches; sandy loam
Bt1—10 to 19 inches; gravelly clay loam
Bt2—19 to 24 inches; gravelly clay loam
Bqm—24 to 26 inches; cemented material
R—26 to 30 inches; bedrock

Characteristics of Pernty

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, basalt, or rhyolite
Slope range: 2 to 20 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A—0 to 3 inches; gravelly sandy loam
Bt1—3 to 12 inches; very cobbly clay loam
R—12 to 22 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 2 to 20 percent

Dissimilar Minor Components

Gradon soils
Percentage of map unit: 5 percent
Landform: Fan remnants

Teguro soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Carryback soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

288—Embal ashy sandy loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,900 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Embal and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Embal

Setting
Landform: Ephemeral stream terraces

Properties and qualities
Parent material: Alluvium derived from volcanic ash and mixed volcanic rock
Slope range: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to a weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: SWALE 10-14 PZ (R023XY202OR)

Typical profile
A1—0 to 2 inches; ashy sandy loam
A2—2 to 6 inches; ashy fine sandy loam
Bw—6 to 25 inches; ashy fine sandy loam
Bkq1—25 to 34 inches; cobbly ashy coarse sandy loam
2Bkq2—34 to 42 inches; gravelly ashy sandy loam
2Bkqm—42 to 60 inches; cemented gravelly ashy sandy loam

Dissimilar Minor Components

Reluctan soils
Percentage of map unit: 10 percent
Landform: Lava plateaus, hillslopes

Hayespring soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

289—Embal-Paulina complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,900 to 6,400 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Embal and similar soils: 50 percent
Paulina and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Embal

Setting
Landform: Ephemeral stream terraces

Properties and qualities
Parent material: Alluvium derived from volcanic ash and mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: 40 to 60 inches to a weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Moderate (about 7.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: LOAMY BOTTOM (R023XY104OR)

Typical profile
A1—0 to 2 inches; gravelly ashy sandy loam
A2—2 to 6 inches; ashy fine sandy loam

Bw—6 to 25 inches; ashy fine sandy loam
Bkq1—25 to 34 inches; cobbly ashy coarse sandy loam
2Bkq2—34 to 42 inches; gravelly ashy sandy loam
2Bkqm—42 to 60 inches; cemented gravelly ashy sandy loam

Characteristics of Paulina

Setting
Landform: Flood plains, drainageways

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Occasional (see Water Features table)
Ponding frequency: None
Seasonal high water table (minimum depth): At the soil surface to a depth of 20 inches (see Water Features table)
Available water capacity: Low (about 4.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: SEMI WET MEADOW (R023XY414OR)

Typical profile
A—0 to 22 inches; very gravelly ashy sandy clay loam
C—22 to 60 inches; extremely cobbly ashy sandy clay loam

Dissimilar Minor Components

Raztack soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Rubble land
Percentage of map unit: 3 percent

Embal soils, ashy sandy loam surface
Percentage of map unit: 2 percent
Landform: Ephemeral stream terraces

290—Enko sandy loam, 0 to 6 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 5,560 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Enko and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Enko

Setting
Landform: Swales, fan piedmonts

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock with an influence of eolian material
Slope range: 0 to 6 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 3e
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 2 inches; sandy loam
Bw—2 to 11 inches; sandy loam
Bq—11 to 35 inches; sandy loam
Bkq—35 to 60 inches; paragravelly sandy loam

Dissimilar Minor Components

Rubble land
Percentage of map unit: 5 percent

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lakebeds

291—Enko loam, 1 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,680 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Enko and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Enko

Setting
Landform: Swales, fan piedmonts

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock with an influence of eolian material
Slope range: 1 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 3e
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
A—0 to 2 inches; loam
Bw—2 to 11 inches; sandy loam
Bq—11 to 35 inches; sandy loam
Bkq—35 to 60 inches; paragravelly sandy loam

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 10 percent
Landform: Dunes on lakebeds

Playas
Percentage of map unit: 5 percent
Landform: Playas

292—Enko loamy sand, 2 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,980 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Enko and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Enko

Setting
Landform: Swales, fan piedmonts

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock with an influence of eolian material
Slope range: 2 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 3e
Ecological site: SANDY LOAM 8-10 PZ (R024XY018OR)

Typical profile
A—0 to 2 inches; loamy sand
Bw—2 to 11 inches; sandy loam
Bq—11 to 35 inches; sandy loam
Bkq—35 to 60 inches; paragravelly sandy loam

Dissimilar Minor Components

Rabbithills soils
Percentage of map unit: 5 percent
Landform: Lake terraces, fan remnants

Catlow soils
Percentage of map unit: 5 percent
Landform: Old beach terraces, old lake terraces

McConnel soils
Percentage of map unit: 5 percent
Landform: Beach terraces, lake terraces

293—Enko-Catlow complex, 7 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,650 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Enko and similar soils: 50 percent
Catlow and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Enko

Setting
Landform: Swales, fan piedmonts

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock with an influence of eolian material
Slope range: 7 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY LOAM 8-10 PZ (R024XY018OR)

Typical profile
A—0 to 2 inches; loamy sand
Bw—2 to 11 inches; sandy loam
Bq—11 to 35 inches; sandy loam
Bkq—35 to 60 inches; paragravelly sandy loam

Characteristics of Catlow

Setting
Landform: Old beach terraces, old lake terraces

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 7 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
A—0 to 3 inches; gravelly loam
Bw—3 to 21 inches; extremely cobbly fine sandy loam
Bq—21 to 30 inches; extremely gravelly sandy loam
C—30 to 60 inches; extremely gravelly sandy loam

Dissimilar Minor Components

McConnel soils
Percentage of map unit: 5 percent
Landform: Beach terraces, lake terraces

Mesman soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Rabbithills soils
Percentage of map unit: 5 percent
Landform: Lake terraces, fan remnants

294—Enko-McConnel complex, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,330 to 4,800 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Enko and similar soils: 50 percent
McConnel and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Enko

Setting
Landform: Swales, fan piedmonts

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock with an influence of eolian material
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 3e
Ecological site: SANDY LOAM 8-10 PZ (R024XY018OR)

Typical profile
A—0 to 2 inches; gravelly loamy sand
Bw—2 to 11 inches; sandy loam
Bq—11 to 35 inches; sandy loam
Bkq—35 to 60 inches; paragravelly sandy loam

Characteristics of McConnel

Setting
Landform: Lake terraces, beach terraces

Properties and qualities
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 2 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 4e
Ecological site: SANDY LOAM 8-10 PZ (R024XY018OR)

Typical profile
A—0 to 1 inch; gravelly loamy sand
Bw—1 to 12 inches; sandy loam
2BC—12 to 18 inches; gravelly sandy loam
2Bk—18 to 60 inches; very gravelly sand

Dissimilar Minor Components

Spiderhole soils, very cobbly loamy sand surface
Percentage of map unit: 5 percent
Landform: Hillslopes

Zorravista soils
Percentage of map unit: 5 percent
Landform: Semi-stablized dunes, sand sheets

Rabbithills soils
Percentage of map unit: 5 percent
Landform: Lake terraces, fan remnants

295—Erakatak cobbly clay loam, moist, 5 to 20 percent slopes

Map Unit Setting

General landscape: Hills, lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,200 to 5,570 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Erakatak and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Erakatak

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as rhyodacite, rhyolite, or basalt with an influence of volcanic ash
Slope range: 5 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 3 inches; cobbly ashy clay loam
A2—3 to 11 inches; very gravelly ashy loam
Bt1—11 to 20 inches; very cobbly ashy clay loam
Bt2—20 to 27 inches; very cobbly ashy clay
R—27 to 37 inches; bedrock

Dissimilar Minor Components

Carryback soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Westbutte soils
Percentage of map unit: 5 percent
Landform: Hillslopes

296—Erakatak-Carryback complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,680 to 6,000 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Erakatak and similar soils: 50 percent
Carryback and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Erakatak

Setting
Landform: Dissected lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as rhyodacite, rhyolite, or basalt with an influence of volcanic ash
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 3 inches; cobbly ashy loam
A2—3 to 11 inches; very gravelly ashy loam
Bt1—11 to 20 inches; very cobbly ashy clay loam
Bt2—20 to 27 inches; very cobbly ashy clay
R—27 to 37 inches; bedrock

Characteristics of Carryback

Setting
Landform: Dissected lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 2 inches; very cobbly loam
A2—2 to 8 inches; silty clay loam
2Bt—8 to 15 inches; clay
3C—15 to 33 inches; loam
3R—33 to 43 inches; bedrock

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Drakesflat soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Chewaucan soils
Percentage of map unit: 5 percent
Landform: Lake terraces

297—Erakatak-Leevan-Rock outcrop complex, 20 to 50 percent slopes

Map Unit Setting

General landscape: Mountains, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,670 to 6,300 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Erakatak and similar soils: 45 percent
Leevan, south, and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Erakatak

Setting
Landform: Hillslopes, mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as rhyodacite, rhyolite, or basalt with an influence of volcanic ash
Slope range: 20 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 12-16 PZ (R023XY302OR)

Typical profile
A1—0 to 3 inches; very stony ashy loam
A2—3 to 11 inches; very gravelly ashy loam
Bt1—11 to 20 inches; very cobbly ashy clay loam
Bt2—20 to 27 inches; very cobbly ashy clay
R—27 to 37 inches; bedrock

Characteristics of Leevan, South

Setting
Landform: Hillslopes, mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, rhyolite, or basalt
Slope range: 20 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW SOUTH SLOPES 8-12 PZ (R023XY600OR)

Typical profile
A1—0 to 3 inches; very cobbly loam
A2—3 to 7 inches; very cobbly loam
Bt1—7 to 16 inches; very gravelly clay loam
Bt2—16 to 31 inches; very cobbly clay
R—31 to 41 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 50 percent

Dissimilar Minor Components

Wagontire soils
Percentage of map unit: 5 percent
Landform: Dissected old alluvial terraces

Ninemile soils
Percentage of map unit: 5 percent
Landform: Hillslopes, ridges

298—Erakatak-Rock outcrop complex, 20 to 60 percent south slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 6,670 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Erakatak and similar soils: 65 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Erakatak

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as rhyodacite, rhyolite, or basalt with an influence of volcanic ash
Slope range: 20 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)

Typical profile
A1—0 to 3 inches; very stony ashy clay loam
A2—3 to 11 inches; very gravelly ashy loam
Bt1—11 to 20 inches; very cobbly ashy clay loam
Bt2—20 to 27 inches; very cobbly ashy clay
R—27 to 37 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 29 to 60 percent

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 8 percent
Landform: Hillslopes, ridges

Westbutte soils
Percentage of map unit: 7 percent
Landform: Mountain slopes, hillslopes

299—Erakatak-Rubble land complex, 30 to 70 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 6,750 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Erakatak and similar soils: 50 percent
Rubble land: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Erakatak

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as rhyodacite, rhyolite, or basalt with an influence of volcanic ash
Slope range: 30 to 70 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 14-18 PZ (R021XY308OR)

Typical profile
A1—0 to 3 inches; very stony ashy loam
A2—3 to 11 inches; very gravelly ashy loam
Bt1—11 to 20 inches; very cobbly ashy clay loam
Bt2—20 to 27 inches; very cobbly ashy clay
R—27 to 37 inches; bedrock

Characteristics of Rubble Land

Description of areas: Accumulations of loose, angular volcanic rock fragments
Slope range: 30 to 70 percent

Dissimilar Minor Components

Redcanyon soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Bullump soils
Percentage of map unit: 5 percent
Landform: Hillslopes

300—Felcher-Camptank-Rock outcrop complex, 15 to 45 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,810 to 5,360 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Felcher, south, and similar soils: 55 percent
Camptank and similar soils: 15 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Felcher, South

Setting
Landform: Lava plateau escarpments

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 45 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 4 inches; very cobbly sandy loam
Bw—4 to 14 inches; very cobbly loam
Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Characteristics of Camptank

Setting
Landform: Lava plateau escarpments

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 45 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: THIN SURFACE 8-14 PZ (R024XY021OR)

Typical profile
A1—0 to 3 inches; extremely gravelly fine sandy loam
A2—3 to 6 inches; sandy loam
Bt1—6 to 10 inches; clay
Bt2—10 to 17 inches; clay loam
2Bk—17 to 34 inches; very stony fine sandy loam
2C—34 to 41 inches; very gravelly fine sandy loam
3R—41 to 51 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 45 percent

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 5 percent
Landform: Plateaus

Brezniak soils
Percentage of map unit: 5 percent
Landform: Deeply dissected lava plateaus

Anawalt soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

301—Felcher-Fitzwater-Rock outcrop complex, 20 to 60 percent slopes

Map Unit Setting

General landscape: Mountains, canyonlands, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,270 to 6,130 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Felcher, south, and similar soils: 40 percent
Fitzwater, north, and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Felcher, South

Setting
Landform: Canyon walls, mountain slopes, hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 4 inches; very cobbly loam
Bw—4 to 14 inches; very cobbly loam
Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Characteristics of Fitzwater, North

Setting
Landform: Canyon walls, mountain slopes, hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 60 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 10-12 PZ (R023XY308OR)

Typical profile
A1—0 to 3 inches; very stony loam
A2—3 to 7 inches; very gravelly sandy loam
Bw—7 to 33 inches; extremely gravelly sandy loam
C—33 to 60 inches; extremely gravelly sandy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 60 percent

Dissimilar Minor Components

Atlow soils
Percentage of map unit: 5 percent
Landform: Mountain slopes, hillslopes

Lambring soils
Percentage of map unit: 5 percent
Landform: Hillslopes, mountain slopes

Westbutte soils
Percentage of map unit: 5 percent
Landform: Mountain slopes, hillslopes

302—Felcher-Oreneva-Rock outcrop complex, 20 to 60 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,700 to 5,540 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Felcher, south, and similar soils: 50 percent
Oreneva, north, and similar soils: 20 percent

Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Felcher, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 8-10 PZ (R024XY638OR)

Typical profile
A—0 to 4 inches; very cobbly sandy loam
Bw—4 to 14 inches; very cobbly loam
Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Characteristics of Oreneva, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID NORTH 8-10 PZ (R023XY602OR)

Typical profile
A—0 to 2 inches; cobbly fine sandy loam
Bw1—2 to 10 inches; clay loam
Bw2—10 to 21 inches; very gravelly loam
2R—21 to 31 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 60 percent

Dissimilar Minor Components

Suckerflat soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Riddleranch soils
Percentage of map unit: 5 percent
Landform: Hillslopes

303—Felcher-Riddleranch-Rock outcrop complex, 20 to 60 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 5,750 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Felcher, south, and similar soils: 50 percent
Riddleranch and similar soils: 20 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Felcher, South

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 4 inches; extremely stony loam
Bw—4 to 14 inches; very cobbly loam
Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Characteristics of Riddleranch

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 60 percent
Depth to restrictive feature: 20 to 35 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID NORTH 8-10 PZ (R023XY602OR)

Typical profile
A—0 to 8 inches; very stony loam
Bt—8 to 28 inches; very cobbly loam
R—28 to 38 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 60 percent

Dissimilar Minor Components

Oreneva soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Suckerflat soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Fitzwater soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

304—Felcher-Rock outcrop complex, 15 to 45 percent south slopes

Map Unit Setting

General landscape: Hills, mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,290 to 5,740 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Felcher, south, and similar soils: 70 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Felcher, South

Setting
Landform: Mountain slopes, hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 45 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 4 inches; very cobbly sandy loam
Bw—4 to 14 inches; very cobbly loam
Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 45 percent

Dissimilar Minor Components

Fitzwater soils
Percentage of map unit: 5 percent
Landform: Hillslopes, mountain slopes

Westbutte soils
Percentage of map unit: 5 percent
Landform: Mountain slopes, hillslopes

Rubble land
Percentage of map unit: 5 percent

305—Felcher-Rock outcrop complex, 20 to 65 percent slopes

Map Unit Setting

General landscape: Hills, mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 5,310 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Felcher, south, and similar soils: 60 percent
Rock outcrop: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Felcher, South

Setting
Landform: Mountain slopes, hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 4 inches; very stony sandy loam
Bw—4 to 14 inches; very cobbly loam
Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 65 percent

Dissimilar Minor Components

Suckerflat soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

306—Felcher-Rock outcrop complex, 40 to 70 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,530 to 4,950 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Felcher, south, and similar soils: 65 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Felcher, South

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 40 to 70 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 4 inches; very stony clay loam
Bw—4 to 14 inches; very cobbly loam
Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 40 to 70 percent

Dissimilar Minor Components

Sagehen soils
Percentage of map unit: 8 percent
Landform: Lava plateaus

Brezniak soils
Percentage of map unit: 7 percent
Landform: Deeply dissected lava plateaus, mountain slopes

307—Felcher-Rock outcrop-Brezniak complex, 30 to 65 percent south slopes

Map Unit Setting

General landscape: Lava plateaus, mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,520 to 6,000 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Felcher, south, and similar soils: 35 percent
Rock outcrop: 30 percent
Brezniak and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Felcher, South

Setting
Landform: Mountain slopes, deeply dissected lava plateaus

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 4 inches; extremely stony sandy clay loam
Bw—4 to 14 inches; very cobbly loam
Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 30 to 65 percent

Characteristics of Brezniak

Setting
Landform: Deeply dissected lava plateaus, mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: 7 to 12 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 3 inches; cobbly loam
Bt—3 to 10 inches; clay
R—10 to 20 inches; bedrock

Dissimilar Minor Components

Leevan soils
Percentage of map unit: 5 percent
Landform: Hillslopes, mountain slopes

Ninemile soils
Percentage of map unit: 5 percent
Landform: Hillslopes, ridges

308—Felcher-Rock outcrop-Westbutte complex, 20 to 40 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,460 to 5,160 feet
Mean annual precipitation: 11 to 12 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Felcher, south, and similar soils: 35 percent
Rock outcrop: 30 percent
Westbutte, north, and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Felcher, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 40 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 4 inches; very cobbly loam
Bw—4 to 14 inches; very cobbly loam

Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 40 percent

Characteristics of Westbutte, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 40 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 3 inches; extremely stony loam
A2—3 to 11 inches; very cobbly loam
Bw—11 to 21 inches; extremely cobbly clay loam
R—21 to 31 inches; bedrock

Dissimilar Minor Components

Lambring soils
Percentage of map unit: 5 percent
Landform: Hillslopes, mountain slopes

Brezniak soils
Percentage of map unit: 5 percent
Landform: Deeply dissected lava plateaus, mountain slopes

309—Firelake-Enko complex, 1 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 5,070 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Firelake and similar soils: 60 percent
Enko and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Firelake

Setting
Landform: Structural benches, hillslopes

Properties and qualities
Parent material: Slope alluvium and residuum derived from volcanic rock such as tuff breccia
Slope range: 2 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.7 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 2 inches; very gravelly loamy coarse sand
Bw—2 to 7 inches; gravelly coarse sandy loam
R—7 to 17 inches; bedrock

Characteristics of Enko

Setting
Landform: Swales, fan piedmonts

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock with an influence of eolian material
Slope range: 1 to 6 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 2 inches; sandy loam
Bw—2 to 11 inches; sandy loam
Bq—11 to 35 inches; sandy loam
Bkq—35 to 60 inches; paragravelly sandy loam

Dissimilar Minor Components

Raz soils
Percentage of map unit: 3 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 3 percent

McConnel soils
Percentage of map unit: 2 percent
Landform: Pediments, beach terraces, lake terraces

Boilout soils
Percentage of map unit: 2 percent
Landform: Lava plateaus

310—Fitzwater extremely stony loam, 30 to 50 percent south slopes

Map Unit Setting

General landscape: Hills, mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,570 to 6,400 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fitzwater, south, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Fitzwater, South

Setting
Landform: Mountain slopes, hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 30 to 50 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SOUTH SLOPES 12-16 PZ (R023XY302OR)

Typical profile
A1—0 to 3 inches; extremely stony loam
A2—3 to 7 inches; very gravelly sandy loam
Bw—7 to 33 inches; extremely gravelly sandy loam
C—33 to 60 inches; extremely gravelly sandy loam

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 5 percent
Landform: Hillslopes, ridges

Felcher soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Erakatak soils
Percentage of map unit: 5 percent
Landform: Mountain slopes, hillslopes

311—Fitzwater-Rock outcrop complex, 20 to 60 percent north slopes

Map Unit Setting

General landscape: Hills, mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,580 to 5,600 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fitzwater, north, and similar soils: 60 percent
Rock outcrop: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Fitzwater, North

Setting
Landform: Mountain slopes, hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 60 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 10-12 PZ (R023XY308OR)

Typical profile
A1—0 to 3 inches; very cobbly loam
A2—3 to 7 inches; very gravelly sandy loam
Bw—7 to 33 inches; extremely gravelly sandy loam
C—33 to 60 inches; extremely gravelly sandy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 60 percent

Dissimilar Minor Components

Felcher soils
Percentage of map unit: 5 percent
Landform: Hillslopes

McConnel soils
Percentage of map unit: 5 percent
Landform: Pediments, beach terraces, lake terraces

Riddleranch soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

312—Flagstaff loamy sand, 1 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,200 to 4,600 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Flagstaff and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Flagstaff

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 1 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): About 24 to 40 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 30 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 80
Available water capacity: Low (about 3.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
Ak1—0 to 1 inch; loamy sand
Ak2—1 to 3 inches; gravelly sandy loam
Bknq—3 to 27 inches; sandy loam
2C—27 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

Kewake soils
Percentage of map unit: 10 percent
Landform: Dunes

Thornlake soils
Percentage of map unit: 3 percent
Landform: Lakebeds

Catlow soils
Percentage of map unit: 2 percent
Landform: Old beach terraces, old lake terraces

313—Flagstaff complex, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Flagstaff, ashy very fine sandy loam surface, and similar soils: 50 percent
Flagstaff, ashy sandy loam surface, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Flagstaff, Ashy Very Fine Sandy Loam Surface

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 4 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 36 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 475
Available water capacity: Very high (about 23.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
AEn—0 to 4 inches; ashy very fine sandy loam
Bn—4 to 12 inches; ashy silty clay loam
BCknz—12 to 16 inches; paragravelly ashy silt loam

Cknqz—16 to 43 inches; extremely parachannery ashy silt loam
Ckq—43 to 69 inches; very parachannery ashy silty clay loam
Cz—69 to 80 inches; paragravelly ashy loamy fine sand

Characteristics of Flagstaff, Ashy Sandy Loam Surface

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 4 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 36 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 475
Available water capacity: Very high (about 23.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALINE BASIN 8-10 PZ (R024XY625OR)

Typical profile
AEn—0 to 4 inches; ashy sandy loam
Bn—4 to 12 inches; ashy silty clay loam
BCknz—12 to 16 inches; paragravelly ashy silt loam
Cknqz—16 to 43 inches; extremely parachannery ashy silt loam
Ckq—43 to 69 inches; very parachannery ashy silty clay loam
Cz—69 to 80 inches; paragravelly ashy loamy fine sand

Dissimilar Minor Components

Playas
Percentage of map unit: 10 percent
Landform: Playas

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

314—Flagstaff-Playas complex, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,320 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Flagstaff and similar soils: 50 percent
Playas: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Flagstaff

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 4 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 36 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 475
Available water capacity: Very high (about 23.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
AEn—0 to 4 inches; ashy silt loam
Bn—4 to 12 inches; ashy silty clay loam
BCknz—12 to 16 inches; paragravelly ashy silt loam
Cknqz—16 to 43 inches; extremely parachannery ashy silt loam
Ckq—43 to 69 inches; very parachannery ashy silty clay loam
Cz—69 to 80 inches; paragravelly ashy loamy fine sand

Characteristics of Playas

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lakebeds

315—Flagstaff-Salhouse complex, 0 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,450 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Flagstaff and similar soils: 45 percent
Salhouse and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Flagstaff

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 4 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 36 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 475
Available water capacity: Very high (about 23.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
AEn—0 to 4 inches; ashy very fine sandy loam
Bn—4 to 12 inches; ashy silty clay loam
BCknz—12 to 16 inches; paragravelly ashy silt loam

Cknqz—16 to 43 inches; extremely parachannery ashy silt loam
Ckq—43 to 69 inches; very parachannery ashy silty clay loam
Cz—69 to 80 inches; paragravelly ashy loamy fine sand

Characteristics of Salhouse

Setting
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from volcanic ash and mixed volcanic rock
Slope range: 0 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
C—5 to 42 inches; ashy loamy sand
Bwb—42 to 61 inches; ashy silt loam

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 10 percent
Landform: Dunes on lakebeds

Fort Rock soils
Percentage of map unit: 5 percent
Landform: Lake terraces

316—Foleylake-Anawalt complex, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,990 to 5,490 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Foleylake and similar soils: 55 percent
Anawalt and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Foleylake

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Loess derived from mixed sources over residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 1 to 5 percent
Depth to restrictive features: 21 to 25 inches to an indurated duripan, 22 to 30 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: THIN SURFACE 8-14 PZ (R024XY021OR)

Typical profile
A—0 to 2 inches; very gravelly loam
BA—2 to 8 inches; very cobbly loam
Bt—8 to 18 inches; gravelly clay
Btk—18 to 23 inches; gravelly clay loam
Bkqm—23 to 27 inches; cemented material
R—27 to 37 inches; bedrock

Characteristics of Anawalt

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 10-12 PZ (R023XY214OR)

Typical profile
A—0 to 3 inches; very cobbly loam
Bt1—3 to 7 inches; cobbly clay loam
Bt2—7 to 18 inches; cobbly clay
R—18 to 28 inches; bedrock

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Rubble land
Percentage of map unit: 5 percent

Raz soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

317—Fort Rock ashy sandy loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,500 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fort Rock and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Fort Rock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 2 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Very low (about 0.8 inch)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 5 inches; ashy sandy loam
BA—5 to 16 inches; gravelly ashy sandy loam
Bw1—16 to 28 inches; ashy loamy sand

2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 10 percent
Landform: Dunes on lakebeds

Abert soils
Percentage of map unit: 5 percent
Landform: Lakebeds

318—Fort Rock gravelly ashy sandy loam, 1 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,540 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fort Rock and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Fort Rock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 1 to 8 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE FLAT 8-10 PZ (R010XA027OR)

Typical profile
A—0 to 5 inches; gravelly ashy sandy loam
BA—5 to 16 inches; gravelly ashy loamy coarse sand

Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Wegert soils
Percentage of map unit: 5 percent
Landform: Lava plains

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

Suckerflat soils
Percentage of map unit: 3 percent
Landform: Lava plains

Weglike soils
Percentage of map unit: 2 percent
Landform: Lava plains

319—Fort Rock-Bonnick complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,520 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fort Rock and similar soils: 60 percent
Bonnick and similar soils: 35 percent
Dissimilar minor component: 5 percent

Characteristics of Fort Rock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 2 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 5 inches; very gravelly ashy loamy sand
BA—5 to 16 inches; gravelly ashy loamy coarse sand
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Characteristics of Bonnick

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Pumiceous ash and volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 3 inches; very gravelly ashy loamy sand
AB—3 to 10 inches; gravelly ashy loamy sand
Bw—10 to 28 inches; gravelly ashy loamy sand
BC—28 to 42 inches; gravelly ashy loamy sand
2Bqb—42 to 45 inches; very gravelly loamy sand
2C—45 to 60 inches; extremely gravelly sand

Dissimilar Minor Component

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

320—Fort Rock-Lapham complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,500 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fort Rock and similar soils: 45 percent
Lapham and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Fort Rock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 2 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 5 inches; gravelly ashy loamy sand
BA—5 to 16 inches; gravelly ashy sandy loam
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Characteristics of Lapham

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff breccia
Slope range: 0 to 2 percent
Depth to restrictive feature: 16 to 26 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A1—0 to 2 inches; very gravelly ashy sandy loam
A2—2 to 16 inches; gravelly ashy sandy loam
2Bw—16 to 20 inches; extremely gravelly ashy loam
2C—20 to 60 inches; extremely gravelly ashy sandy loam

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 10 percent
Landform: Dunes on lakebeds

Abert soils
Percentage of map unit: 5 percent
Landform: Lakebeds

321—Fort Rock-Lapham complex, warm, 0 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,770 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fort Rock, warm, and similar soils: 45 percent
Lapham, warm, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Fort Rock, Warm

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 2 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 5 inches; very gravelly ashy sandy loam
BA—5 to 16 inches; gravelly ashy sandy loam
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Characteristics of Lapham, Warm

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff breccia
Slope range: 0 to 10 percent
Depth to restrictive feature: 16 to 26 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A1—0 to 2 inches; gravelly ashy sandy loam
A2—2 to 16 inches; gravelly ashy sandy loam
2Bw—16 to 20 inches; extremely gravelly ashy loam
2C—20 to 60 inches; extremely gravelly ashy sandy loam

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 10 percent
Landform: Dunes on lakebeds

Suckerflat soils
Percentage of map unit: 5 percent
Landform: Lava plains

322—Fort Rock-Morehouse complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,500 feet
Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fort Rock and similar soils: 50 percent
Morehouse and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Fort Rock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 2 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 5 inches; very gravelly ashy sandy loam
BA—5 to 16 inches; gravelly ashy sandy loam
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Abert soils
Percentage of map unit: 4 percent
Landform: Lakebeds

Bonnick soils
Percentage of map unit: 4 percent
Landform: Lake terraces

Thornlake soils
Percentage of map unit: 2 percent
Landform: Lakebeds

323—Fort Rock-Morehouse complex, 1 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,420 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fort Rock and similar soils: 50 percent
Morehouse and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Fort Rock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 1 to 5 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE PLAINS 8-11 PZ (R023XY607OR)

Typical profile
A—0 to 5 inches; ashy loamy sand
BA—5 to 16 inches; gravelly ashy loamy coarse sand
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 1 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE PLAINS 8-11 PZ (R023XY607OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Wegert soils
Percentage of map unit: 5 percent
Landform: Lava plains

Bonnick soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Crackedground soils
Percentage of map unit: 5 percent
Landform: Lava plains

324—Fort Rock-Morehouse complex, moist, 0 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,450 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fort Rock, moist, and similar soils: 45 percent
Morehouse, moist, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Fort Rock, Moist

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 2 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 5 inches; very gravelly ashy sandy loam
BA—5 to 16 inches; gravelly ashy sandy loam
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Characteristics of Morehouse, Moist

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits

Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Suckerflat soils
Percentage of map unit: 10 percent
Landform: Lava plains

Tonor soils
Percentage of map unit: 5 percent
Landform: Lakebeds

325—Fort Rock-Suckerflat complex, 0 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,760 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fort Rock and similar soils: 50 percent
Suckerflat and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Fort Rock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 8 percent

Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 5 inches; very gravelly ashy sandy loam
BA—5 to 16 inches; gravelly ashy sandy loam
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Characteristics of Suckerflat

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 0 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 8 inches; ashy loamy sand
Bw—8 to 18 inches; cobbly ashy loam
2R—18 to 28 inches; bedrock

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 7 percent
Landform: Dunes on lakebeds

Rock outcrop
Percentage of map unit: 5 percent

Lapham soils
Percentage of map unit: 3 percent
Landform: Lake terraces

326—Fossilake ashy fine sandy loam, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,290 to 4,310 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fossilake and similar soils: 90 percent
Dissimilar minor component: 10 percent

Characteristics of Fossilake

Setting
Landform: Depressions of lakebeds

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Strongly saline (about 23 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 65
Available water capacity: Very high (about 13.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: THIN SURFACE SODIC FLAT (R024XY614OR)

Typical profile
Anz1—0 to 1 inch; ashy fine sandy loam
Anz2—1 to 3 inches; ashy very fine sandy loam
Bn—3 to 15 inches; ashy silt loam
Cn—15 to 31 inches; stratified ashy loamy sand to ashy loam
Bknb—31 to 43 inches; ashy loam
BCgb—43 to 66 inches; ashy silt loam

Dissimilar Minor Component

Rubble land
Percentage of map unit: 10 percent

327—Fossilake-Salhouse complex, cool, 0 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,290 to 4,320 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Fossilake, cool, and similar soils: 50 percent
Salhouse, cool, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Fossilake, Cool

Setting
Landform: Depressions of lakebeds

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Strongly saline (about 23 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 65
Available water capacity: Very high (about 13.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC LAKE TERRACE (R024XY114OR)

Typical profile
Anz1—0 to 1 inch; ashy loamy fine sand
Anz2—1 to 3 inches; ashy very fine sandy loam
Bn—3 to 15 inches; ashy silt loam
Cn—15 to 31 inches; stratified ashy loamy sand to ashy loam
Bknb—31 to 43 inches; ashy loam
BCgb—43 to 66 inches; ashy silt loam

Characteristics of Salhouse, Cool

Setting
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from volcanic ash and mixed volcanic rock

Slope range: 0 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
C—5 to 42 inches; ashy loamy sand
Bwb—42 to 61 inches; ashy silt loam

Dissimilar Minor Components

Abert soils
Percentage of map unit: 5 percent
Landform: Lakebeds

Fossilake soils
Percentage of map unit: 5 percent
Landform: Depressions of lakebeds

Thornlake soils
Percentage of map unit: 5 percent
Landform: Lakebeds

328—Giranch-Meld complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,480 to 4,900 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Giranch and similar soils: 45 percent
Meld and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Giranch

Setting
Landform: Fan remnants

Properties and qualities
Parent material: Volcanic ash mixed with alluvium derived from mixed volcanic rock
Slope range: 2 to 15 percent

Depth to restrictive feature: 22 to 36 inches to a very strongly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A—0 to 11 inches; cobbly ashy very fine sand
Bt1—11 to 23 inches; very gravelly ashy sandy clay loam
Bt2—23 to 29 inches; gravelly clay
Btq—29 to 33 inches; clay loam
2Bkqm—33 to 60 inches; cemented material

Characteristics of Meld

Setting
Landform: Fan remnants

Properties and qualities
Parent material: Volcanic ash mixed with alluvium derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A—0 to 3 inches; gravelly ashy very fine sandy loam
Bt1—3 to 16 inches; ashy clay loam
Bt2—16 to 33 inches; very gravelly ashy clay loam
Bqm—33 to 40 inches; cemented material

Dissimilar Minor Components

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Borobey soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Senra soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

329—Glencabin gravelly ashy loam, 15 to 30 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,840 to 5,600 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Glencabin, south, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Glencabin, South

Setting
Landform: Buttes, hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE SOUTH SLOPES 10-14 PZ (R023XY612OR)

Typical profile
A1—0 to 5 inches; gravelly ashy loam
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Dissimilar Minor Components

Ludi soils
Percentage of map unit: 5 percent
Landform: Cinder cones

Redcliff soils, south
Percentage of map unit: 5 percent
Landform: Hillslopes

Rock outcrop
Percentage of map unit: 5 percent

330—Glencabin gravelly ashy loam, 30 to 65 percent north slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,590 to 5,300 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Glencabin, north, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Glencabin, North

Setting
Landform: Buttes, hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)

Typical profile
A1—0 to 5 inches; gravelly ashy loam
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Dissimilar Minor Components

Ludi soils
Percentage of map unit: 5 percent
Landform: Cinder cones

Redcliff soils, south
Percentage of map unit: 5 percent
Landform: Hillslopes

Rock outcrop
Percentage of map unit: 5 percent

331—Glencabin gravelly ashy loam, 30 to 65 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,790 to 5,820 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Glencabin, south, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Glencabin, South

Setting
Landform: Buttes, hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE SOUTH SLOPES 10-14 PZ (R023XY612OR)

Typical profile
A1—0 to 5 inches; gravelly ashy loam
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Dissimilar Minor Components

Ludi soils
Percentage of map unit: 5 percent
Landform: Cinder cones

Redcliff soils, south
Percentage of map unit: 5 percent
Landform: Hillslopes

Rock outcrop
Percentage of map unit: 5 percent

332—Glencabin complex, dry, 15 to 35 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,340 to 5,750 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Glencabin, south, dry, and similar soils: 45 percent
Glencabin, north, dry, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Glencabin, South, Dry

Setting
Landform: Buttes, hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)

Typical profile
A1—0 to 5 inches; gravelly ashy loam
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Characteristics of Glencabin, North, Dry

Setting
Landform: Buttes, hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)

Typical profile
A1—0 to 5 inches; gravelly ashy loam
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Dissimilar Minor Components

Kunceider soils
Percentage of map unit: 10 percent
Landform: Lava plains

Wegert soils
Percentage of map unit: 3 percent
Landform: Lava plains

Rock outcrop
Percentage of map unit: 2 percent

333—Glencabin-Rock outcrop complex, 15 to 65 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,430 to 4,710 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Glencabin and similar soils: 45 percent
Rock outcrop: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Glencabin

Setting
Landform: Buttes, hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 15 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JD SHRUBBY MOUNTAIN SOUTH 12-16 PZ (R010XB046OR)

Typical profile
A1—0 to 5 inches; very gravelly ashy sandy loam
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 65 percent

Dissimilar Minor Components

Kunceider soils
Percentage of map unit: 10 percent
Landform: Lava plains

Derallo soils
Percentage of map unit: 5 percent
Landform: Hillslopes

334—Glencabin-Rock outcrop complex, moist, 15 to 40 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,850 to 6,010 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Glencabin and similar soils: 65 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Glencabin

Setting
Landform: Buttes, hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 15 to 40 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SR MAHOGANY ROCKLAND 12+ PZ (R010XC059OR)

Typical profile
A1—0 to 5 inches; gravelly ashy sandy loam
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 40 percent

Dissimilar Minor Components

Jacksplace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

Fort Rock soils
Percentage of map unit: 5 percent
Landform: Lake terraces

335—Glencabin-Wanoga complex, 15 to 35 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,850 to 5,530 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Glencabin, gravelly ashy loamy sand surface, and similar soils: 30 percent
Glencabin, ashy loamy sand surface, and similar soils: 30 percent
Wanoga and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Glencabin, Gravelly Ashy Loamy Sand Surface

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 15 to 35 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SR MAHOGANY ROCKLAND 12+ PZ (R010XC059OR)

Typical profile
A1—0 to 5 inches; gravelly ashy loamy sand
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Characteristics of Glencabin, Ashy Loamy Sand Surface

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER DRY PINE 14-16 PZ (R021XY508OR)

Typical profile
A1—0 to 5 inches; ashy loamy sand
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Characteristics of Wanoga

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PINE-MAHOGANY-FESCUE 16-20 PZ (R021XY411OR)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; ashy loamy coarse sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Dunres soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Norcross soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

336—Glencabin-Yapoah-Rock outcrop complex, 15 to 50 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,540 to 4,930 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Glencabin and similar soils: 40 percent
Yapoah and similar soils: 35 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Glencabin

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 15 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER DRY PINE 14-16 PZ (R021XY508OR)

Typical profile
A1—0 to 5 inches; ashy loamy sand
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Characteristics of Yapoah

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as rhyolite or basalt
Slope range: 15 to 40 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Arctostaphylos patula/ Festuca idahoensis-pumice* (CPS217)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; ashy loamy sand
A2—6 to 16 inches; gravelly ashy loamy sand
AC—16 to 36 inches; very gravelly ashy loamy sand
C—36 to 61 inches; extremely flaggy ashy loamy sand

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 40 percent

Dissimilar Minor Components

Pitcheranch soils
Percentage of map unit: 5 percent
Landform: Lakebeds

Hackwood soils
Percentage of map unit: 5 percent
Landform: Escarpments

338—Goodtack ashy very fine sandy loam, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,380 to 4,980 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Goodtack and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Goodtack

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 10 percent
Depth to restrictive features: 16 to 20 inches to an indurated duripan, 20 to 48 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 3 inches; ashy very fine sandy loam
A2—3 to 7 inches; ashy fine sandy loam
Bt—7 to 19 inches; ashy fine sandy loam
Bkqm—19 to 46 inches; cemented material
R—46 to 56 inches; bedrock

Dissimilar Minor Components

Moonbeam soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rubble land
Percentage of map unit: 5 percent

339—Goodtack ashy very fine sandy loam, low precipitation, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,310 to 4,720 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Goodtack, low precipitation, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Goodtack, Low Precipitation

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 5 percent
Depth to restrictive features: 16 to 20 inches to an indurated duripan, 20 to 48 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID PLAINS 8-11 PZ (R023XY604OR)

Typical profile
A1—0 to 3 inches; ashy very fine sandy loam
A2—3 to 7 inches; ashy fine sandy loam
Bt—7 to 19 inches; ashy fine sandy loam
Bkqm—19 to 46 inches; cemented material
R—46 to 56 inches; bedrock

Dissimilar Minor Components

Moonbeam soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Hayespring soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

340—Goodtack-Borobey complex, 0 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,420 to 4,780 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Goodtack and similar soils: 60 percent
Borobey and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Goodtack

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 10 percent
Depth to restrictive features: 16 to 20 inches to an indurated duripan, 20 to 48 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID PLAINS 8-11 PZ (R023XY604OR)

Typical profile
A1—0 to 3 inches; ashy coarse sandy loam
A2—3 to 7 inches; ashy fine sandy loam
Bt—7 to 19 inches; ashy fine sandy loam
Bkqm—19 to 46 inches; cemented material
R—46 to 56 inches; bedrock

Characteristics of Borobey

Setting
Landform: Depressions of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 4 inches; gravelly ashy sandy loam
AB—4 to 12 inches; ashy loamy sand
Bq—12 to 50 inches; ashy loamy fine sand
C—50 to 68 inches; ashy loamy sand

Dissimilar Minor Components

Jacksplace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Raz soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Brace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

341—Goodtack-Borobey complex, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,430 to 4,560 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Goodtack and similar soils: 65 percent
Borobey and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Goodtack

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 5 percent
Depth to restrictive features: 16 to 20 inches to an indurated duripan, 20 to 48 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 3 inches; ashy loamy fine sand
A2—3 to 7 inches; ashy fine sandy loam
Bt—7 to 19 inches; ashy fine sandy loam
Bkqm—19 to 46 inches; cemented material
R—46 to 56 inches; bedrock

Characteristics of Borobey

Setting
Landform: Depressions of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 1 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STIPA FESCUE BASIN 8-11 PZ (R023XY670OR)

Typical profile
A—0 to 4 inches; ashy loamy sand
AB—4 to 12 inches; ashy loamy sand
Bq—12 to 50 inches; ashy loamy fine sand
C—50 to 68 inches; ashy loamy sand

Dissimilar Minor Components

Hayespring soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Greenmountain soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

342—Goodtack-Morehouse complex, 1 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,580 to 4,800 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Goodtack and similar soils: 60 percent
Morehouse and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Goodtack

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 15 percent
Depth to restrictive features: 16 to 20 inches to an indurated duripan, 20 to 48 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE PLAINS 8-11 PZ (R010XA659OR)

Typical profile
A1—0 to 3 inches; ashy loamy fine sand
A2—3 to 7 inches; ashy fine sandy loam
Bt—7 to 19 inches; ashy fine sandy loam
Bkqm—19 to 46 inches; cemented material
R—46 to 56 inches; bedrock

Characteristics of Morehouse

Setting
Landform: Dunes on lava plateaus

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: FORESTED SANDY LOAM 8-11 PZ (R006XA212OR)

Typical profile
A—0 to 5 inches; ashy sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 60 inches; ashy loamy sand

Dissimilar Minor Components

Millenium soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Borobey soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

343—Goodtack-Sliptrack complex, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,600 to 4,950 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Goodtack and similar soils: 45 percent
Sliptrack and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Goodtack

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 8 percent
Depth to restrictive features: 16 to 20 inches to an indurated duripan, 20 to 48 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A1—0 to 3 inches; ashy sandy loam
A2—3 to 7 inches; ashy fine sandy loam
Bt—7 to 19 inches; ashy fine sandy loam
Bkqm—19 to 46 inches; cemented material
R—46 to 56 inches; bedrock

Characteristics of Sliptrack

Setting
Landform: Depressions of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; stony ashy fine sandy loam
A2—3 to 11 inches; ashy fine sandy loam
Bt1—11 to 16 inches; ashy sandy clay loam
Bt2—16 to 22 inches; ashy clay loam
Bkqm—22 to 60 inches; cemented material

Dissimilar Minor Components

Dunres soils
Percentage of map unit: 5 percent
Landform: Side slopes of lava plateaus

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Senra soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

344—Gradon gravelly fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 5,260 feet
Mean annual precipitation: 11 to 13 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Gradon and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Gradon

Setting
Landform: Fan remnants

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 3 inches; gravelly fine sandy loam
A2—3 to 10 inches; loam
Bt—10 to 22 inches; clay loam
Btq—22 to 32 inches; gravelly sandy loam
Bkqm1—32 to 48 inches; cemented material
Bkqm2—48 to 55 inches; cemented material
C—55 to 62 inches; sandy loam

Dissimilar Minor Components

Ratto soils
Percentage of map unit: 10 percent
Landform: Fan remnants, lava plateaus

Raz soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

345—Greenmountain gravelly ashy sandy loam, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,540 to 4,840 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Greenmountain and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Greenmountain

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive feature: 30 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Available water capacity: Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE 9-12 PZ (R023XY515OR)

Typical profile
A1—0 to 3 inches; gravelly ashy sandy loam
A2—3 to 13 inches; ashy sandy loam
Bt—13 to 17 inches; cobbly ashy sandy loam
Btq—17 to 24 inches; ashy sandy loam
Bq—24 to 37 inches; cobbly ashy fine sandy loam
Bkqm—37 to 42 inches; cemented material
Bkq—42 to 65 inches; cobbly ashy fine sandy loam

Dissimilar Minor Components

Connleyhills soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Jacksplace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

346—Greenmountain-Jacksplace complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 5,210 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Greenmountain and similar soils: 50 percent
Jacksplace and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Greenmountain

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 30 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Available water capacity: Moderate (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A1—0 to 3 inches; ashy sandy loam
A2—3 to 13 inches; ashy sandy loam
Bt—13 to 17 inches; cobbly ashy sandy loam
Btq—17 to 24 inches; ashy sandy loam
Bq—24 to 37 inches; cobbly ashy fine sandy loam
Bkqm—37 to 42 inches; cemented material
Bkq—42 to 65 inches; cobbly ashy fine sandy loam

Characteristics of Jacksplace

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 24 to 32 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A1—0 to 4 inches; ashy sandy loam
A2—4 to 9 inches; cobbly ashy sandy loam
Bt1—9 to 12 inches; very stony ashy sandy loam

Bt2—12 to 20 inches; extremely stony ashy sandy clay loam
C—20 to 26 inches; extremely stony ashy sandy loam
R—26 to 30 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Crackedground soils
Percentage of map unit: 5 percent
Landform: Lava plains

347—Greenmountain-Lastcall complex, 1 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,580 to 4,830 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Greenmountain and similar soils: 45 percent
Lastcall and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Greenmountain

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Depth to restrictive feature: 30 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Available water capacity: Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 13 inches; ashy sandy loam
Bt—13 to 17 inches; cobbly ashy sandy loam
Btq—17 to 24 inches; ashy sandy loam
Bq—24 to 37 inches; cobbly ashy fine sandy loam

Bkqm—37 to 42 inches; cemented material
Bkq—42 to 65 inches; cobbly ashy fine sandy loam

Characteristics of Lastcall

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Depth to restrictive feature: 26 to 34 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 2 inches; ashy loamy fine sand
A2—2 to 7 inches; ashy sandy loam
BA—7 to 13 inches; ashy sandy loam
Btq—13 to 21 inches; cobbly ashy sandy clay loam
Bt—21 to 31 inches; cobbly ashy sandy clay loam
R—31 to 41 inches; bedrock

Dissimilar Minor Components

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Sliptrack soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

Jacksplace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

348—Greenmountain-Weglike complex, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,610 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Greenmountain and similar soils: 45 percent
Weglike and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Greenmountain

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 10 percent
Depth to restrictive feature: 30 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Available water capacity: Moderate (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A1—0 to 3 inches; ashy sandy loam
A2—3 to 13 inches; ashy sandy loam
Bt—13 to 17 inches; cobbly ashy sandy loam
Btq—17 to 24 inches; ashy sandy loam
Bq—24 to 37 inches; cobbly ashy fine sandy loam
Bkqm—37 to 42 inches; cemented material
Bkq—42 to 65 inches; cobbly ashy fine sandy loam

Characteristics of Weglike

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as tuff breccia or basalt
Slope range: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A—0 to 3 inches; ashy loamy sand
AB—3 to 12 inches; ashy sandy loam
2Bwb1—12 to 22 inches; gravelly loam
2Bwb2—22 to 23 inches; extremely gravelly loam
2R—23 to 33 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Crackedground soils
Percentage of map unit: 5 percent
Landform: Lava plains

349—Hackwood-Westbutte complex, 15 to 35 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,860 to 6,290 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 30 to 80 days

Map Unit Composition

Hackwood and similar soils: 45 percent
Westbutte, north, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Hackwood

Setting
Landform: Escarpments

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as basalt
Slope range: 15 to 35 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ASPEN GROVE (R021XY416OR)

Typical profile
A1—0 to 11 inches; gravelly loam
A2—11 to 23 inches; loam

AC—23 to 48 inches; gravelly loam
C—48 to 60 inches; gravelly loam

Characteristics of Westbutte, North

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 3 inches; very stony loam
A2—3 to 11 inches; very cobbly loam
Bw—11 to 21 inches; extremely cobbly clay loam
R—21 to 31 inches; bedrock

Dissimilar Minor Components

Baconcamp soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

Pearlwise soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

350—Hager complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,440 to 4,780 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Hager, cobbly loam surface, and similar soils: 45 percent
Hager, extremely stony loam surface, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Hager, Cobbly Loam Surface

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as tuff or *basalt*
Slope range: 2 to 15 percent
Depth to restrictive features: 20 to 40 inches to an indurated duripan, 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Available water capacity: Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 4 inches; cobbly loam
A2—4 to 8 inches; cobbly loam
2Bt—8 to 24 inches; silty clay loam
2Bkq—24 to 37 inches; loam
3Bkqm—37 to 42 inches; cemented material
4R—42 to 52 inches; bedrock

Characteristics of Hager, Extremely Stony Loam Surface

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as tuff or *basalt*
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan, 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Available water capacity: Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: THIN SURFACE 8-14 PZ (R024XY021OR)

Typical profile
A1—0 to 4 inches; extremely stony loam
A2—4 to 8 inches; cobbly loam
2Bt—8 to 24 inches; silty clay loam
2Bkq—24 to 37 inches; loam

3Bkqm—37 to 42 inches; cemented material
4R—42 to 52 inches; bedrock

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Foleylake soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Old Camp soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

351—Hayespring ashy loamy fine sand, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,470 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Hayespring and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Hayespring

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID PLAINS 8-11 PZ (R023XY604OR)

Typical profile
A1—0 to 3 inches; ashy loamy fine sand
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam

Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Dissimilar Minor Components

Reluctan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Riddleranch soils
Percentage of map unit: 5 percent
Landform: Deeply dissected lava plateaus

Swalesilver soils
Percentage of map unit: 5 percent
Landform: Closed depressions of lava plateaus

352—Hayespring-Dunres complex, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,600 to 4,800 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Hayespring and similar soils: 65 percent
Dunres and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Hayespring

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE 9-12 PZ (R023XY515OR)

Typical profile
A1—0 to 3 inches; stony ashy sandy loam
A2—3 to 10 inches; stony ashy fine sandy loam

Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Characteristics of Dunres

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 20 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY LOAM 10-12 PZ (R023XY516OR)

Typical profile
A—0 to 4 inches; cobbly ashy sandy loam
Bt1—4 to 8 inches; ashy sandy clay loam
2Bt2—8 to 19 inches; clay
2Bqm1—19 to 32 inches; cemented material
2Bqm2—32 to 56 inches; cemented material
2R—56 to 60 inches; bedrock

Dissimilar Minor Components

Jacksplace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Crackedground soils
Percentage of map unit: 5 percent
Landform: Lava plains

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

353—Hayespring-Moonbeam complex, 1 to 6 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,750 to 5,020 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Hayespring and similar soils: 45 percent
Moonbeam and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Hayespring

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 6 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 6 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam

2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Sliptrack soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

Dunres soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Borobey soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

354—Hayespring-Moonbeam complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,670 to 5,240 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Hayespring and similar soils: 50 percent
Moonbeam and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Hayespring

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 3 inches; gravelly ashy loam
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 3 inches; cobbly ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Meld soils
Percentage of map unit: 5 percent
Landform: Fan remnants

Giranch soils
Percentage of map unit: 5 percent
Landform: Fan remnants

Jacksplace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

355—Hayespring-Moonbeam complex, cobbly, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,460 to 5,360 feet

Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Hayespring, cobbly ashy loamy sand surface, and similar soils: 45 percent
Moonbeam, cobbly ashy loam surface, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Hayespring, Cobbly Ashy Loamy Sand Surface

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE PLAINS 8-11 PZ (R010XA659OR)

Typical profile
A1—0 to 3 inches; cobbly ashy loamy sand
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Characteristics of Moonbeam, Cobbly Ashy Loam Surface

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; cobbly ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Lastcall soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Dunres soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

356—Hayespring-Moonbeam complex, low precipitation, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 4,650 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Hayespring, low precipitation, and similar soils: 65 percent
Moonbeam, low precipitation, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Hayespring, Low Precipitation

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE 9-12 PZ (R023XY515OR)

Typical profile
A1—0 to 3 inches; very cobbly ashy sandy loam
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Characteristics of Moonbeam, Low Precipitation

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 3 inches; very gravelly ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Sliptrack soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

Lastcall soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Wegert soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

357—Hayespring-Senra complex, 1 to 6 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,430 to 4,680 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Hayespring and similar soils: 45 percent
Senra and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Hayespring

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 6 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY LOAM 10-12 PZ (R023XY516OR)

Typical profile
A1—0 to 3 inches; ashy sandy loam
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 6 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JD SHRUBBY CLAYPAN 12-16 PZ (R010XB082OR)

Typical profile
A1—0 to 3 inches; ashy sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

358—Helphenstein silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,270 to 4,300 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Helphenstein and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Helphenstein

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)

Salinity (maximum): Strongly saline (about 35 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 100
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC FLAT (R024XY001OR)

Typical profile
An—0 to 2 inches; silt loam
Bn1—2 to 8 inches; silt loam
Bn2—8 to 34 inches; silty clay loam
2C—34 to 60 inches; loam

Dissimilar Minor Components

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Kewake soils
Percentage of map unit: 5 percent
Landform: Dunes

Ozamis soils
Percentage of map unit: 5 percent
Landform: Alluvial flats

359—Helphenstein silt loam, frequently ponded, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,260 to 4,330 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Helphenstein, frequently ponded, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Helphenstein, Frequently Ponded

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)

Salinity (maximum): Strongly saline (about 35 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 100
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: SODIC LAKE TERRACE (R024XY114OR)

Typical profile
An—0 to 2 inches; silt loam
Bn1—2 to 8 inches; silt loam
Bn2—8 to 34 inches; silty clay loam
2C—34 to 60 inches; loam

Dissimilar Minor Components

Paulina soils
Percentage of map unit: 5 percent
Landform: Lakebeds

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Flagstaff soils
Percentage of map unit: 5 percent
Landform: Lakebeds

360—Helphenstein very channery loam, 0 to 4 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,150 to 4,290 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Helphenstein and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Helphenstein

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 4 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)

Salinity (maximum): Strongly saline (about 35 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 100
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC FLAT (R024XY001OR)

Typical profile
An—0 to 2 inches; very channery loam
Bn1—2 to 8 inches; silt loam
Bn2—8 to 34 inches; silty clay loam
2C—34 to 60 inches; loam

Dissimilar Minor Components

Kewake soils
Percentage of map unit: 5 percent
Landform: Dunes

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Icene soils
Percentage of map unit: 5 percent
Landform: Lake terraces

361—Helphenstein-Kewake complex, 0 to 45 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,270 to 4,440 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Helphenstein and similar soils: 55 percent
Kewake and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Helphenstein

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)

Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Strongly saline (about 35 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 100
Available water capacity: Low (about 3.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC FLAT (R024XY001OR)

Typical profile
An—0 to 2 inches; fine sandy loam
Bn1—2 to 8 inches; silt loam
Bn2—8 to 34 inches; silty clay loam
2C—34 to 60 inches; loam

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 5 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy loamy fine sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Catlow soils
Percentage of map unit: 5 percent
Landform: Old beach terraces, old lake terraces

362—Helphenstein-Legler-Playas complex, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,530 to 4,630 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Helphenstein, frequently ponded, and similar soils: 50 percent
Legler and similar soils: 20 percent
Playas: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Helphenstein, Frequently Ponded

Setting
Landform: Lakebeds, terraces

Properties and qualities
Parent material: Volcanic ash and alluvium over lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 1
Available water capacity: Very high (about 14.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: DRY PONDED BASIN 6-10 PZ (R024XY629OR)

Typical profile
A—0 to 4 inches; ashy silty clay loam
Bk1—4 to 9 inches; ashy silty clay loam
Bk2—9 to 18 inches; ashy sandy loam
C—18 to 60 inches; ashy loam

Characteristics of Legler

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY FLOODPLAIN (R024XY004OR)

Typical profile
A1—0 to 4 inches; loam
A2—4 to 8 inches; clay loam
B—8 to 43 inches; clay loam
C—43 to 61 inches; loam

Characteristics of Playas

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Bridgewell soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Rabbithills soils
Percentage of map unit: 2 percent
Landform: Lake terraces, fan remnants

Enko soils
Percentage of map unit: 2 percent
Landform: Swales, fan piedmonts

Chancelakes soils
Percentage of map unit: 1 percent
Landform: Drainageways

363—Helphenstein-Pitcheranch-Reese complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,250 to 4,310 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Helphenstein, frequently ponded, and similar soils: 50 percent
Pitcheranch and similar soils: 20 percent
Reese and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Helphenstein, Frequently Ponded

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Strongly saline (about 35 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 100
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: SODIC LAKE TERRACE (R024XY114OR)

Typical profile
An—0 to 2 inches; silt loam
Bn1—2 to 8 inches; silt loam
Bn2—8 to 34 inches; silty clay loam
2C—34 to 60 inches; loam

Characteristics of Pitcheranch

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Very poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Available water capacity: Very high (about 12.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: BASIN WET MEADOW (R023XY117OR)

Typical profile
A—0 to 8 inches; silty clay loam
Bg—8 to 35 inches; silt loam
Cg—35 to 62 inches; stratified sandy loam to loam to silt loam to silty clay loam

Characteristics of Reese

Setting
Landform: Alluvial flats

Properties and qualities
Parent material: Lacustrine and alluvial deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table (minimum depth): About 12 to 36 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 24 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 350
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC MEADOW (R024XY002OR)

Typical profile
An1—0 to 4 inches; silt loam
2An2—4 to 10 inches; loam
2Bnq—10 to 33 inches; loam
3Bq1—33 to 44 inches; loam
4Bq2—44 to 60 inches; loam

Dissimilar Minor Components

Playas
Percentage of map unit: 4 percent
Landform: Playas

Salhouse soils
Percentage of map unit: 3 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Helphenstein soils
Percentage of map unit: 3 percent
Landform: Lakebeds

364—Helphenstein-Turpin-Kewake complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Helphenstein and similar soils: 40 percent
Turpin and similar soils: 30 percent
Kewake and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Helphenstein

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Strongly saline (about 35 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 100
Available water capacity: Low (about 3.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC FLAT (R024XY001OR)

Typical profile
An—0 to 2 inches; fine sandy loam
Bn1—2 to 8 inches; silt loam
Bn2—8 to 34 inches; silty clay loam
2C—34 to 60 inches; loam

Characteristics of Turpin

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A—0 to 3 inches; sandy clay loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy fine sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Playas
Percentage of map unit: 5 percent
Landform: Playas

Flagstaff soils
Percentage of map unit: 5 percent
Landform: Lakebeds

365—Henkle-Ludi complex, 20 to 40 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,030 to 5,400 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Henkle and similar soils: 45 percent
Ludi and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Henkle

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 20 to 40 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PONDEROSA FESCUE HILLS 12-14 PZ (R006XB211OR)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; gravelly ashy fine sandy loam
A2—6 to 16 inches; gravelly ashy loam
Bw—16 to 20 inches; extremely bouldery ashy loam
2R—20 to 30 inches; bedrock

Characteristics of Ludi

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 20 to 40 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)

Typical profile
A1—0 to 3 inches; very gravelly ashy loamy sand
A2—3 to 12 inches; very gravelly ashy very fine sandy loam
Bw—12 to 35 inches; extremely cobbly ashy very fine sandy loam
2C—35 to 60 inches; cinders

Dissimilar Minor Components

Laidlaw soils
Percentage of map unit: 5 percent
Landform: Swales of mountain slopes

Wildcatbutte soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

Chesebro soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

366—Henkle-Wanoga complex, 1 to 15 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,460 to 5,330 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Henkle and similar soils: 65 percent
Wanoga and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Henkle

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PONDEROSA FESCUE HILLS 12-14 PZ (R006XB211OR)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; extremely cobbly ashy loamy sand

A2—6 to 16 inches; gravelly ashy loam
Bw—16 to 20 inches; extremely bouldery ashy loam
2R—20 to 30 inches; bedrock

Characteristics of Wanoga

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 1 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PONDEROSA FESCUE HILLS 12-14 PZ (R006XB211OR)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Glencabin soils
Percentage of map unit: 5 percent
Landform: Hillslopes, buttes

367—Henkle-Wanoga complex, dry, 10 to 30 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,660 to 4,860 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Henkle, dry, and similar soils: 50 percent
Wanoga, dry, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Henkle, Dry

Setting

Landform: Mountain slopes

Properties and qualities

Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 10 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/ Festuca idahoensis* (CPS111)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; ashy sandy loam
A2—6 to 16 inches; gravelly ashy loam
Bw—16 to 20 inches; extremely bouldery ashy loam
2R—20 to 30 inches; bedrock

Characteristics of Wanoga, Dry

Setting

Landform: Mountain slopes

Properties and qualities

Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 10 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/ Festuca idahoensis* (CPS111)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; ashy sandy loam
A2—8 to 23 inches; ashy sand

Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Dissimilar Minor Components

Laidlaw soils
Percentage of map unit: 10 percent
Landform: Swales of mountain slopes

Rock outcrop
Percentage of map unit: 5 percent

368—Horning ashy loamy sand, 2 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,520 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Horning and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Horning

Setting
Landform: Stable dunes on lake terraces

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash and diatomite over lacustrine deposits derived from diatomite and volcanic rock such as tuff
Slope range: 2 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 120
Available water capacity: High (about 11.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SILTY DUNES (R024XY644OR)

Typical profile
A—0 to 4 inches; ashy loamy sand
Bkn—4 to 26 inches; ashy loamy fine sand
Bknb—26 to 40 inches; ashy fine sandy loam
Bkb—40 to 58 inches; ashy loamy fine sand
2C—58 to 85 inches; ashy loam

Dissimilar Minor Components

Abert soils
Percentage of map unit: 4 percent
Landform: Lakebeds

Morehouse soils
Percentage of map unit: 4 percent
Landform: Dunes on lakebeds

Youtlkue soils
Percentage of map unit: 4 percent
Landform: Depressions of lakebeds

Tonor soils
Percentage of map unit: 3 percent
Landform: Lakebeds

369—Horning-Tonor complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,340 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Horning and similar soils: 50 percent
Tonor and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Horning

Setting
Landform: Stable dunes on lake terraces

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash and diatomite over lacustrine deposits derived from diatomite and volcanic rock such as tuff
Slope range: 0 to 3 percent
Percentage of surface area covered by rock fragments: 0 to 35 percent with gravel
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 120
Available water capacity: High (about 11.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SILTY DUNES (R024XY644OR)

Typical profile
A—0 to 4 inches; ashy loamy sand
Bkn—4 to 26 inches; ashy loamy fine sand
Bknb—26 to 40 inches; ashy fine sandy loam
Bkb—40 to 58 inches; ashy loamy fine sand
2C—58 to 85 inches; ashy loam

Characteristics of Tonor

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very high (about 12.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SILTY ALKALINE BOTTOM 8-10 PZ (R024XY645OR)

Typical profile
A—0 to 3 inches; ashy sandy loam
Bw—3 to 11 inches; ashy loam
Bkn—11 to 43 inches; ashy sandy loam
2C—43 to 60 inches; very paragravelly ashy silt loam

Dissimilar Minor Components

Youtlkue soils
Percentage of map unit: 4 percent
Landform: Depressions of lakebeds

Morehouse soils
Percentage of map unit: 4 percent
Landform: Dunes on lakebeds

Abert soils
Percentage of map unit: 2 percent
Landform: Lakebeds

370—Icene-Playas complex, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,270 to 4,550 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Icene and similar soils: 55 percent
Playas: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Icene

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic rock such as basalt or tuff
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): About 24 to 30 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 40 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 100
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
Anz1—0 to 3 inches; loam
Anz2—3 to 7 inches; loam
Bnz—7 to 41 inches; loam
C—41 to 60 inches; fine sandy loam

Characteristics of Playas

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Mesman soils
Percentage of map unit: 5 percent
Landform: Lake terraces

371—Ipsoot very paragravelly ashy loamy coarse sand, 15 to 65 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,550 to 5,630 feet
Mean annual precipitation: 15 to 35 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Ipsoot and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ipsoot

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash over cinders derived from volcanic rock such as basalt
Slope range: 15 to 65 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned

Plant community class: Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/ Acnatherum occidentale-pumice (CPS213)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; very paragravelly ashy loamy coarse sand
AC—5 to 18 inches; very paragravelly ashy loamy coarse sand
C—18 to 31 inches; ashy coarse sand
2C—31 to 61 inches; cinders

Dissimilar Minor Components

Wanoga soils
Percentage of map unit: 8 percent
Landform: Mountain slopes

Rock outcrop
Percentage of map unit: 7 percent

372—Ipsoot very paragravelly ashy loamy coarse sand, 30 to 65 percent north slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,750 to 6,230 feet
Mean annual precipitation: 15 to 35 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Ipsoot, north, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ipsoot, North

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash over cinders derived from volcanic rock such as basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice (CWS112)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; very paragravelly ashy loamy coarse sand
AC—5 to 18 inches; very paragravelly ashy loamy coarse sand
C—18 to 31 inches; ashy coarse sand
2C—31 to 61 inches; cinders

Dissimilar Minor Components

Wanoga soils
Percentage of map unit: 8 percent
Landform: Mountain slopes

Rock outcrop
Percentage of map unit: 7 percent

373—Ipsoot very paragravelly ashy loamy coarse sand, 30 to 65 percent south slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,320 to 6,230 feet
Mean annual precipitation: 15 to 35 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Ipsoot, south, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ipsoot, South

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash over cinders derived from volcanic rock such as basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Ceanothus velutinus/ Acnatherum occidentale-pumice* (CPS311)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; very paragravelly ashy loamy coarse sand

AC—5 to 18 inches; very paragravelly ashy loamy coarse sand
C—18 to 31 inches; ashy coarse sand
2C—31 to 61 inches; cinders

Dissimilar Minor Components

Wanoga soils
Percentage of map unit: 8 percent
Landform: Mountain slopes

Rock outcrop
Percentage of map unit: 7 percent

374—Jacksplace ashy fine sandy loam, moist, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,730 to 5,200 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Jacksplace, moist, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Jacksplace, Moist

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 24 to 32 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 4 inches; ashy fine sandy loam
A2—4 to 9 inches; cobbly ashy sandy loam
Bt1—9 to 12 inches; very stony ashy sandy loam
Bt2—12 to 20 inches; extremely stony ashy sandy clay loam
C—20 to 26 inches; extremely stony ashy sandy loam
R—26 to 30 inches; bedrock

Dissimilar Minor Components

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

Wegert soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Weglike soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

375—Jacksplace ashy loamy sand, 1 to 6 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,410 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Jacksplace and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Jacksplace

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 6 percent
Depth to restrictive feature: 24 to 32 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE PLAINS 8-11 PZ (R023XY607OR)

Typical profile
A1—0 to 4 inches; ashy loamy sand
A2—4 to 9 inches; cobbly ashy loamy sand
Bt1—9 to 12 inches; very stony ashy sandy loam
Bt2—12 to 20 inches; extremely stony ashy sandy clay loam
C—20 to 26 inches; extremely stony ashy sandy loam
R—26 to 30 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Crackedground soils
Percentage of map unit: 5 percent
Landform: Lava plains

376—Jacksplace cobbly ashy very fine sandy loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 5,250 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Jacksplace and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Jacksplace

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 24 to 32 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 4 inches; cobbly ashy very fine sandy loam
A2—4 to 9 inches; cobbly ashy sandy loam
Bt1—9 to 12 inches; very stony ashy sandy loam
Bt2—12 to 20 inches; extremely stony ashy sandy clay loam
C—20 to 26 inches; extremely stony ashy sandy loam
R—26 to 30 inches; bedrock

Dissimilar Minor Components

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

Wegert soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Weglike soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

377—Jacksplace stony ashy loamy fine sand, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,380 to 4,550 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Jacksplace and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Jacksplace

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 24 to 32 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STIPA FESCUE PLAINS 8-10 PZ (R023XY666OR)

Typical profile
A1—0 to 4 inches; stony ashy loamy fine sand
A2—4 to 9 inches; cobbly ashy loamy sand
Bt1—9 to 12 inches; very stony ashy sandy loam
Bt2—12 to 20 inches; extremely stony ashy sandy clay loam
C—20 to 26 inches; extremely stony ashy sandy loam
R—26 to 30 inches; bedrock

Dissimilar Minor Components

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

Wegert soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Weglike soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

378—Jacksplace-Derallo-Glencabin complex, 5 to 60 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,510 to 5,930 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Jacksplace and similar soils: 35 percent
Derallo and similar soils: 30 percent
Glencabin and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Jacksplace

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 5 to 20 percent
Depth to restrictive feature: 24 to 32 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 4 inches; gravelly ashy very fine sandy loam
A2—4 to 9 inches; cobbly ashy sandy loam
Bt1—9 to 12 inches; very stony ashy sandy loam
Bt2—12 to 20 inches; extremely stony ashy sandy clay loam
C—20 to 26 inches; extremely stony ashy sandy loam
R—26 to 30 inches; bedrock

Characteristics of Derallo

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite
Slope range: 20 to 60 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)

Typical profile
A1—0 to 1 inch; extremely cobbly ashy fine sandy loam
A2—1 to 12 inches; extremely cobbly ashy loam
Bt1—12 to 36 inches; extremely gravelly ashy loam
Bt2—36 to 41 inches; very gravelly ashy fine sandy loam
Cr—41 to 51 inches; bedrock

Characteristics of Glencabin

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 20 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 5 inches; very cobbly ashy fine sand
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Dissimilar Minor Components

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Goodtack soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Glassbutte soils
Percentage of map unit: 3 percent
Landform: Hillslopes

Oatmanflat soils
Percentage of map unit: 2 percent
Landform: Stream terraces

379—Jacksplace-Senra complex, 5 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,600 to 4,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Jacksplace and similar soils: 50 percent
Senra and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Jacksplace

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 5 to 15 percent
Depth to restrictive feature: 24 to 32 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A1—0 to 4 inches; cobbly ashy very fine sandy loam
A2—4 to 9 inches; cobbly ashy sandy loam
Bt1—9 to 12 inches; very stony ashy sandy loam
Bt2—12 to 20 inches; extremely stony ashy sandy clay loam
C—20 to 26 inches; extremely stony ashy sandy loam
R—26 to 30 inches; bedrock

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 5 to 15 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; gravelly ashy very fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

380—Kewake loamy sand, 2 to 45 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,860 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Kewake and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 2 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy loamy sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Mesman soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

Playas
Percentage of map unit: 5 percent
Landform: Playas

382—Kewake-Helphenstein complex, 0 to 25 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,220 to 4,330 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Kewake and similar soils: 45 percent
Helphenstein, frequently ponded, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 2 to 25 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy loamy fine sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Characteristics of Helphenstein, Frequently Ponded

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Strongly saline (about 35 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 100
Available water capacity: Low (about 3.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: SODIC LAKE TERRACE (R024XY114OR)

Typical profile
An—0 to 2 inches; fine sandy loam
Bn1—2 to 8 inches; silt loam
Bn2—8 to 34 inches; silty clay loam
2C—34 to 60 inches; loam

Dissimilar Minor Components

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Flagstaff soils
Percentage of map unit: 5 percent
Landform: Lakebeds

Playas
Percentage of map unit: 5 percent
Landform: Playas

383—Kewake-Helphenstein, dry, complex, 0 to 25 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,250 to 4,410 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Kewake and similar soils: 60 percent
Helphenstein, dry, and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 2 to 25 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy fine sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Characteristics of Helphenstein, Dry

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Strongly saline (about 35 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 100
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC FLAT (R024XY001OR)

Typical profile
An—0 to 2 inches; silt loam
Bn1—2 to 8 inches; silt loam
Bn2—8 to 34 inches; silty clay loam
2C—34 to 60 inches; loam

Dissimilar Minor Components

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Playas
Percentage of map unit: 5 percent
Landform: Playas

Flagstaff soils
Percentage of map unit: 5 percent
Landform: Lakebeds

384—Kewake-Icene complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,330 to 4,430 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Kewake and similar soils: 55 percent
Icene and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 1 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy fine sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Characteristics of Icene

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic rock such as basalt or tuff
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): About 24 to 30 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 40 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 100
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
Anz1—0 to 3 inches; loam
Anz2—3 to 7 inches; loam
Bnz—7 to 41 inches; loam
C—41 to 60 inches; fine sandy loam

Dissimilar Minor Components

Mesman soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

385—Kewake-Ozamis-Reese complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,260 to 4,300 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Kewake and similar soils: 35 percent
Ozamis and similar soils: 30 percent
Reese and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 1 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy fine sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Characteristics of Ozamis

Setting
Landform: Alluvial flats

Properties and qualities
Parent material: Lacustrine and alluvial deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table (minimum depth): About 12 to 48 inches (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Available water capacity: High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 5w
Ecological site: SODIC MEADOW (R024XY002OR)

Typical profile
Ag—0 to 10 inches; silty clay
Cg—10 to 34 inches; silt loam
2C—34 to 36 inches; ashy coarse sand
3Cg—36 to 60 inches; very fine sandy loam

Characteristics of Reese

Setting
Landform: Alluvial flats

Properties and qualities
Parent material: Lacustrine and alluvial deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table (minimum depth): About 12 to 36 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 24 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 350
Available water capacity: Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC MEADOW (R024XY002OR)

Typical profile
An1—0 to 4 inches; very fine sandy loam
2An2—4 to 10 inches; loam
2Bnq—10 to 33 inches; loam
3Bq1—33 to 44 inches; loam
4Bq2—44 to 60 inches; loam

Dissimilar Minor Components

Salhouse soils
Percentage of map unit: 10 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Flagstaff soils
Percentage of map unit: 5 percent
Landform: Lakebeds

386—Kewake-Turpin complex, 0 to 45 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,480 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Kewake and similar soils: 55 percent
Turpin and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 2 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy loamy sand
C1—4 to 18 inches; ashy loamy fine sand

C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Characteristics of Turpin

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC TERRACE 6-10 PZ (R024XY014OR)

Typical profile
A—0 to 3 inches; fine sandy loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Dissimilar Minor Components

Playas
Percentage of map unit: 10 percent
Landform: Playas

McConnel soils
Percentage of map unit: 5 percent
Landform: Beach terraces, lake terraces

387—Kewake-Turpin complex, sodic, 0 to 45 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,270 to 4,430 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Kewake, sodic, and similar soils: 45 percent
Turpin, sodic, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Kewake, Sodic

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 2 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy loamy sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Characteristics of Turpin, Sodic

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A—0 to 3 inches; sandy loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Dissimilar Minor Components

Playas
Percentage of map unit: 5 percent
Landform: Playas

McConnel soils
Percentage of map unit: 5 percent
Landform: Beach terraces, lake terraces

Mesman soils
Percentage of map unit: 5 percent
Landform: Lake terraces

388—Krackle complex, 20 to 40 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,700 to 5,990 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 30 to 60 days

Map Unit Composition

Krackle, north, and similar soils: 55 percent
Krackle, south, and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Krackle, North

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as basalt
Slope range: 20 to 40 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A—0 to 4 inches; gravelly sandy loam
Bw—4 to 15 inches; very stony clay loam
C—15 to 30 inches; very stony clay loam
2R—30 to 40 inches; bedrock

Characteristics of Krackle, South

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as basalt
Slope range: 20 to 40 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 12-16 PZ (R023XY302OR)

Typical profile
A—0 to 4 inches; gravelly sandy loam
Bw—4 to 15 inches; very stony clay loam
C—15 to 30 inches; very stony clay loam
2R—30 to 40 inches; bedrock

Dissimilar Minor Components

Baconcamp soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

Clamp soils
Percentage of map unit: 4 percent
Landform: Mountain slopes

Hackwood soils
Percentage of map unit: 3 percent
Landform: Escarpments

Rock outcrop
Percentage of map unit: 3 percent

389—Kunceider cobbly ashy loamy sand, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,840 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Kunceider and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Kunceider

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A1—0 to 5 inches; cobbly ashy loamy sand
A2—5 to 9 inches; very cobbly ashy loamy sand
2Bw—9 to 14 inches; extremely gravelly ashy sandy loam
2R—14 to 24 inches; bedrock

Dissimilar Minor Components

Wegert soils
Percentage of map unit: 8 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 7 percent

390—Kunceider-Fort Rock complex, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,330 to 4,700 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Kunceider and similar soils: 55 percent
Fort Rock and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Kunceider

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A1—0 to 5 inches; ashy sandy loam
A2—5 to 9 inches; very cobbly ashy loamy sand
2Bw—9 to 14 inches; extremely gravelly ashy sandy loam
2R—14 to 24 inches; bedrock

Characteristics of Fort Rock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 1 to 5 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE PLAINS 8-11 PZ (R023XY607OR)

Typical profile
A—0 to 5 inches; ashy loamy sand
BA—5 to 16 inches; gravelly ashy loamy coarse sand
Bw1—16 to 28 inches; ashy loamy sand
2Bw2—28 to 35 inches; very gravelly loamy sand
2Bq—35 to 39 inches; very gravelly sandy loam
3C—39 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Crackedground soils
Percentage of map unit: 10 percent
Landform: Lava plains

Rock outcrop
Percentage of map unit: 5 percent

391—Kunceider-Rock outcrop complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,800 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Kunceider and similar soils: 75 percent
Rock outcrop: 15 percent
Dissimilar minor component: 10 percent

Characteristics of Kunceider

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A1—0 to 5 inches; cobbly ashy loamy sand
A2—5 to 9 inches; very cobbly ashy loamy sand
2Bw—9 to 14 inches; extremely gravelly ashy sandy loam
2R—14 to 24 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 0 to 15 percent

Dissimilar Minor Component

Wegert soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

392—Kunceider-Wegert complex, 1 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,390 to 4,580 feet
Mean annual precipitation: 10 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Kunceider and similar soils: 55 percent
Wegert and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Kunceider

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 10-12 PZ (R023XY210OR)

Typical profile
A1—0 to 5 inches; ashy loamy sand
A2—5 to 9 inches; very cobbly ashy loamy sand
2Bw—9 to 14 inches; extremely gravelly ashy sandy loam
2R—14 to 24 inches; bedrock

Characteristics of Wegert

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE FLAT 10-12 PZ (R023XY508OR)

Typical profile
A1—0 to 2 inches; ashy loamy sand
A2—2 to 6 inches; ashy loamy sand
Bw—6 to 27 inches; ashy loamy sand
2C—27 to 31 inches; extremely cobbly ashy loamy sand
2R—31 to 41 inches; bedrock

Dissimilar Minor Components

Weglike soils
Percentage of map unit: 5 percent
Landform: Lava plains

Crackedground soils
Percentage of map unit: 5 percent
Landform: Lava plains

Bonnick soils
Percentage of map unit: 5 percent
Landform: Lake terraces

393—Laidlaw ashy loamy coarse sand, 5 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,840 to 5,270 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Laidlaw and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Laidlaw

Setting
Landform: Depressions of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 5 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 7.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/ Festuca idahoensis* (CPS111)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 5 inches; ashy loamy coarse sand
A2—5 to 13 inches; ashy loamy sand
AC—13 to 31 inches; ashy loamy coarse sand
2Bw1—31 to 37 inches; cobbly ashy sandy loam
2Bw2—37 to 50 inches; ashy fine sandy loam
2C—50 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Henkle soils
Percentage of map unit: 5 percent
Landform: Volcanic cones

Ludi soils
Percentage of map unit: 5 percent
Landform: Cinder cones

394—Laidlaw ashy loamy sand, 15 to 40 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,370 to 4,700 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Laidlaw and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Laidlaw

Setting
Landform: Maar volcanoes on lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 15 to 40 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/Festuca idahoensis* (CPS111)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 5 inches; ashy loamy sand
A2—5 to 13 inches; ashy loamy sand
AC—13 to 31 inches; ashy loamy coarse sand
2Bw1—31 to 37 inches; cobbly ashy sandy loam
2Bw2—37 to 50 inches; ashy fine sandy loam
2C—50 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Wanoga soils
Percentage of map unit: 7 percent
Landform: Lava plateaus

Henkle soils
Percentage of map unit: 5 percent
Landform: Volcanic cones

Rock outcrop
Percentage of map unit: 3 percent

395—Laidlaw-Wanoga complex, dry, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,490 to 5,070 feet
Mean annual precipitation: 12 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Laidlaw, dry, and similar soils: 60 percent
Wanoga, dry, and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Laidlaw, Dry

Setting
Landform: Depressions of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/ Festuca idahoensis* (CPS111)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 5 inches; ashy loamy sand
A2—5 to 13 inches; ashy loamy sand
AC—13 to 31 inches; ashy loamy coarse sand
2Bw1—31 to 37 inches; cobbly ashy sandy loam
2Bw2—37 to 50 inches; ashy fine sandy loam
2C—50 to 60 inches; ashy loamy fine sand

Characteristics of Wanoga, Dry

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/ Festuca idahoensis* (CPS111)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Dissimilar Minor Components

Henkle soils
Percentage of map unit: 5 percent
Landform: Volcanic cones

Rock outcrop
Percentage of map unit: 5 percent

397—Lapham gravelly ashy loamy sand, 0 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,600 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Lapham and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Lapham

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff breccia
Slope range: 0 to 8 percent
Depth to restrictive feature: 16 to 26 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE PLAINS 8-11 PZ (R023XY607OR)

Typical profile
A1—0 to 2 inches; gravelly ashy loamy sand
A2—2 to 16 inches; gravelly ashy loamy sand
2Bw—16 to 20 inches; extremely gravelly ashy loam
2C—20 to 60 inches; extremely gravelly ashy sandy loam

Dissimilar Minor Components

Fort Rock soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lakebeds

Abert soils
Percentage of map unit: 5 percent
Landform: Lakebeds

398—Lapine paragravelly ashy loamy coarse sand, 15 to 30 percent north slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,560 to 4,860 feet
Mean annual precipitation: 16 to 20 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Lapine, north, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Lapine, North

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Eolian deposits of dacitic pumiceous ash and pumice fragments over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)

Typical profile
A—0 to 4 inches; paragravelly ashy loamy coarse sand
Bw—4 to 12 inches; paragravelly ashy loamy coarse sand
C—12 to 56 inches; extremely paragravelly ashy coarse sand
2Bqb—56 to 60 inches; silty clay loam

Dissimilar Minor Components

Shanahan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Shukash soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

399—Lapine paragravelly ashy loamy coarse sand, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,560 to 4,870 feet
Mean annual precipitation: 16 to 20 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Lapine and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Lapine

Setting
Landform: Cinder cones, lava plateaus

Properties and qualities
Parent material: Eolian deposits of dacitic pumiceous ash and pumice fragments over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice* (CPS212)

Typical profile
A—0 to 4 inches; paragravelly ashy loamy coarse sand
Bw—4 to 12 inches; paragravelly ashy loamy coarse sand
C—12 to 56 inches; extremely paragravelly ashy coarse sand
2Bqb—56 to 60 inches; silty clay loam

Dissimilar Minor Components

Paulina family
Percentage of map unit: 3 percent
Landform: Flood plains

Widowspring family
Percentage of map unit: 3 percent
Landform: Stream terraces

Krackle family
Percentage of map unit: 2 percent
Landform: Lava plateaus

Steiger soils
Percentage of map unit: 2 percent
Landform: Lava plateaus

400—Lapine paragravelly ashy loamy coarse sand, low landscape position, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,540 to 4,670 feet
Mean annual precipitation: 16 to 20 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Lapine and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Lapine

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Eolian deposits of dacitic pumiceous ash and pumice fragments over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: *Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)

Typical profile
A—0 to 4 inches; paragravelly ashy loamy coarse sand
Bw—4 to 12 inches; paragravelly ashy loamy coarse sand
C—12 to 56 inches; extremely paragravelly ashy coarse sand
2Bqb—56 to 60 inches; silty clay loam

Dissimilar Minor Components

Paulina family
Percentage of map unit: 5 percent
Landform: Flood plains

Shanahan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

401—Lastcall ashy sandy loam, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,520 to 5,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Lastcall and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Lastcall

Setting

Landform: Lava plateaus

Properties and qualities

Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive feature: 26 to 34 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile

A1—0 to 2 inches; ashy sandy loam
A2—2 to 7 inches; ashy sandy loam
BA—7 to 13 inches; ashy sandy loam
Btq—13 to 21 inches; cobbly ashy sandy clay loam
Bt—21 to 31 inches; cobbly ashy sandy clay loam
R—31 to 41 inches; bedrock

Dissimilar Minor Components

Moonbeam soils

Percentage of map unit: 5 percent
Landform: Lava plateaus

Senra soils

Percentage of map unit: 5 percent
Landform: Lava plateaus

Kunceider soils

Percentage of map unit: 5 percent
Landform: Lava plains

402—Lastcall complex, 1 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,540 to 4,800 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Lastcall, gently sloping, and similar soils: 65 percent
Lastcall, nearly level, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Lastcall, Gently Sloping

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 10 percent
Depth to restrictive feature: 26 to 34 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 2 inches; ashy sandy loam
A2—2 to 7 inches; ashy sandy loam
BA—7 to 13 inches; ashy sandy loam
Btq—13 to 21 inches; cobbly ashy sandy clay loam
Bt—21 to 31 inches; cobbly ashy sandy clay loam
R—31 to 41 inches; bedrock

Characteristics of Lastcall, Nearly Level

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 3 percent
Depth to restrictive feature: 26 to 34 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 2 inches; ashy sandy loam
A2—2 to 7 inches; ashy sandy loam
BA—7 to 13 inches; ashy sandy loam
Btq—13 to 21 inches; cobbly ashy sandy clay loam
Bt—21 to 31 inches; cobbly ashy sandy clay loam
R—31 to 41 inches; bedrock

Dissimilar Minor Components

Moonbeam soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

403—Lastcall-Hayespring complex, 0 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,700 to 4,890 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Lastcall and similar soils: 65 percent
Hayespring and similar soils: 30 percent
Dissimilar minor component: 5 percent

Characteristics of Lastcall

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 0 to 1 percent
Depth to restrictive feature: 26 to 34 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 2 inches; ashy sandy loam
A2—2 to 7 inches; ashy sandy loam
BA—7 to 13 inches; ashy sandy loam
Btq—13 to 21 inches; cobbly ashy sandy clay loam
Bt—21 to 31 inches; cobbly ashy sandy clay loam
R—31 to 41 inches; bedrock

Characteristics of Hayespring

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A1—0 to 3 inches; stony ashy fine sandy loam
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Dissimilar Minor Component

Goodtack soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

404—Lastcall-Hayespring complex, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,520 to 5,020 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Lastcall and similar soils: 60 percent
Hayespring and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Lastcall

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 26 to 34 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 2 inches; ashy fine sandy loam
A2—2 to 7 inches; ashy sandy loam
BA—7 to 13 inches; ashy sandy loam
Btq—13 to 21 inches; cobbly ashy sandy clay loam
Bt—21 to 31 inches; cobbly ashy sandy clay loam
R—31 to 41 inches; bedrock

Characteristics of Hayespring

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A1—0 to 3 inches; ashy sandy loam
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Jacksplace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

405—Lastcall-Jacksplace-Embal complex, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,600 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Lastcall and similar soils: 45 percent
Jacksplace and similar soils: 25 percent
Embal and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Lastcall

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 3 percent
Depth to restrictive feature: 26 to 34 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 2 inches; ashy sandy loam
A2—2 to 7 inches; ashy sandy loam
BA—7 to 13 inches; ashy sandy loam
Btq—13 to 21 inches; cobbly ashy sandy clay loam
Bt—21 to 31 inches; cobbly ashy sandy clay loam
R—31 to 41 inches; bedrock

Characteristics of Jacksplace

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 24 to 32 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A1—0 to 4 inches; ashy loamy fine sand
A2—4 to 9 inches; cobbly ashy sandy loam
Bt1—9 to 12 inches; very stony ashy sandy loam
Bt2—12 to 20 inches; extremely stony ashy sandy clay loam
C—20 to 26 inches; extremely stony ashy sandy loam
R—26 to 30 inches; bedrock

Characteristics of Embal

Setting
Landform: Drainageways

Properties and qualities
Parent material: Alluvium derived from volcanic ash and mixed volcanic rock
Slope range: 1 to 5 percent
Depth to restrictive feature: 40 to 60 inches to a weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SWALE 10-14 PZ (R023XY202OR)

Typical profile
A1—0 to 2 inches; ashy silt loam
A2—2 to 6 inches; ashy fine sandy loam
Bw—6 to 25 inches; ashy fine sandy loam
Bkq1—25 to 34 inches; cobbly ashy coarse sandy loam
2Bkq2—34 to 42 inches; gravelly ashy sandy loam
2Bkqm—42 to 60 inches; cemented gravelly ashy sandy loam

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Borobey soils
Percentage of map unit: 5 percent
Landform: Depressions of lake plateaus

407—Lastcall-Moonbeam complex, 1 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,470 to 5,100 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Lastcall and similar soils: 45 percent
Moonbeam and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Lastcall

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 10 percent
Depth to restrictive feature: 26 to 34 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 2 inches; stony ashy sandy loam
A2—2 to 7 inches; ashy sandy loam
BA—7 to 13 inches; ashy sandy loam
Btq—13 to 21 inches; cobbly ashy sandy clay loam
Bt—21 to 31 inches; cobbly ashy sandy clay loam
R—31 to 41 inches; bedrock

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 10 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; stony ashy fine sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Goodtack soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

Rock outcrop
Percentage of map unit: 5 percent

408—Leevan-Fitzwater-Chen complex, 20 to 60 percent slopes

Map Unit Setting

General landscape: Mountains, hills
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,980 to 6,170 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Leevan and similar soils: 40 percent
Fitzwater, south, and similar soils: 30 percent
Chen and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Leevan

Setting
Landform: Hillslopes, mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, rhyolite, or basalt
Slope range: 20 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW SOUTH SLOPES 8-12 PZ (R023XY600OR)

Typical profile
A—0 to 3 inches; very gravelly loam
Bw—3 to 16 inches; very gravelly clay loam
C—16 to 22 inches; extremely cobbly loam
R—22 to 32 inches; bedrock

Characteristics of Fitzwater, South

Setting
Landform: Hillslopes, mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 60 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 12-16 PZ (R023XY302OR)

Typical profile
A1—0 to 3 inches; very gravelly loamy sand
A2—3 to 7 inches; very gravelly sandy loam
Bw—7 to 33 inches; extremely gravelly sandy loam
C—33 to 60 inches; extremely gravelly sandy loam

Characteristics of Chen

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt
Slope range: 20 to 60 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW NORTH 12-16 PZ (R023XY312OR)

Typical profile
A—0 to 24 inches; very gravelly loam
Bk—24 to 31 inches; very gravelly loam
C—31 to 41 inches; very gravelly sandy loam
R—41 to 51 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Lambring soils
Percentage of map unit: 5 percent
Landform: Hillslopes, mountain slopes

409—Leevan-Lambring-Rock outcrop complex, 20 to 60 percent slopes

Map Unit Setting

General landscape: Hills, mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,640 to 6,700 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Leevan, north, and similar soils: 40 percent
Lambring, north, and similar soils: 35 percent

Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Leevan, North

Setting
Landform: Hillslopes, mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, rhyolite, or basalt
Slope range: 20 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW NORTH 12-16 PZ (R023XY312OR)

Typical profile
A1—0 to 3 inches; very cobbly loam
A2—3 to 7 inches; very cobbly loam
Bt1—7 to 16 inches; very gravelly clay loam
Bt2—16 to 31 inches; very cobbly clay
R—31 to 41 inches; bedrock

Characteristics of Lambring, North

Setting
Landform: Mountain slopes, hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as tuff, andesite, or basalt
Slope range: 20 to 60 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 5 inches; very gravelly loam
A2—5 to 20 inches; very cobbly sandy loam
C—20 to 50 inches; extremely cobbly loamy sand
2R—50 to 60 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 60 percent

Dissimilar Minor Components

Westbutte soils
Percentage of map unit: 5 percent
Landform: Mountain slopes, hillslopes

Ludi soils
Percentage of map unit: 5 percent
Landform: Cinder cones

410—Legler clay loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,540 to 4,560 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Legler and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Legler

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 11.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Land capability subclass (irrigated): 3c
Ecological site: DRY LAKE TERRACE 6-10 PZ (R024XY632OR)

Typical profile
A1—0 to 4 inches; clay loam
A2—4 to 8 inches; clay loam
B—8 to 43 inches; clay loam
C—43 to 61 inches; loam

Dissimilar Minor Components

Playas
Percentage of map unit: 10 percent
Landform: Playas

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

411—Bridgewell-Legler complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,380 to 4,570 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Bridgewell and similar soils: 50 percent
Legler and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Bridgewell

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic rock with an influence of volcanic ash in the upper part
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 7 inches (see Water Features table)
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: PONDED CLAY (R023XY200OR)

Typical profile
A—0 to 7 inches; ashy loam
B—7 to 12 inches; ashy loam
C—12 to 60 inches; very fine sandy loam

Characteristics of Legler

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 10.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: DRY FLOODPLAIN (R024XY004OR)

Typical profile
A1—0 to 4 inches; loam
A2—4 to 8 inches; clay loam
B—8 to 43 inches; clay loam
C—43 to 61 inches; loam

Dissimilar Minor Components

McConnel soils
Percentage of map unit: 5 percent
Landform: Beach terraces, lake terraces

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

412—Bridgewell-Chancelakes association, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,540 to 5,100 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Bridgewell and similar soils: 55 percent
Chancelakes and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Bridgewell

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic rock with an influence of volcanic ash in the upper part
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 7 inches (see Water Features table)
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: PONDED CLAY (R023XY200OR)

Typical profile
A—0 to 7 inches; ashy loam
B—7 to 12 inches; ashy loam
C—12 to 60 inches; very fine sandy loam

Characteristics of Chancelakes

Setting
Landform: Drainageways

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic rock such as basalt or tuff with an influence of volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 1 inch (see Water Features table)
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Available water capacity: High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: LAKEBED (R023XY100OR)

Typical profile
AE—0 to 1 inch; ashy silt loam
Bt—1 to 10 inches; clay
Btk—10 to 29 inches; clay
Btkss—29 to 58 inches; clay
B′tk—58 to 63 inches; ashy sandy clay loam

Dissimilar Minor Components

Swalesilver soils
Percentage of map unit: 10 percent
Landform: Lake terraces

Playas
Percentage of map unit: 5 percent
Landform: Playas

413—Lithic Haploxerolls-Lava flows complex, cool, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,580 to 5,610 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Lithic Haploxerolls, cool, and similar soils: 70 percent
Lava flows: 25 percent
Dissimilar minor component: 5 percent

Characteristics of Lithic Haploxerolls, Cool

Setting
Landform: Lava fields

Properties and qualities
Parent material: Mixed eolian deposits, volcanic ash, and colluvium derived from volcanic rock such as basalt, tuff, or rhyolite
Slope range: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.4 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: JUNIPER-PINE LAVALANDS 10-12 PZ (R021XY425OR)

Typical profile
A—0 to 2 inches; extremely stony ashy fine sandy loam
Bw—2 to 11 inches; extremely stony ashy fine sandy loam
2R—11 to 21 inches; bedrock

Characteristics of Lava Flows

Description of areas: Lateral hardened rock consisting of cooled molten lava
Slope range: 2 to 15 percent

Dissimilar Minor Component

Rubble land
Percentage of map unit: 5 percent

414—Lithic Haploxerolls-Lava flows complex, dry, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,380 to 4,960 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Lithic Haploxerolls, dry, and similar soils: 50 percent
Lava flows: 45 percent
Dissimilar minor component: 5 percent

Characteristics of Lithic Haploxerolls, Dry

Setting
Landform: Lava fields

Properties and qualities
Parent material: Mixed eolian deposits, volcanic ash, and colluvium derived from volcanic rock such as basalt, tuff, or rhyolite
Slope range: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.8 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: FRACTURED LAVA FLOW 8-10 PZ (R023XY672OR)

Typical profile
A—0 to 2 inches; ashy fine sandy loam
Bw—2 to 11 inches; extremely stony ashy fine sandy loam
2R—11 to 21 inches; bedrock

Characteristics of Lava Flows

Description of areas: Lateral hardened rock consisting of cooled molten lava
Slope range: 2 to 15 percent

Dissimilar Minor Component

Rock outcrop
Percentage of map unit: 5 percent

415—Locane cobbly clay loam, 2 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,870 feet

Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Locane and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Locane

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt
Slope range: 2 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYEY 10-12 PZ (R023XY220OR)

Typical profile
A1—0 to 2 inches; cobbly clay loam
A2—2 to 10 inches; clay loam
Bt—10 to 18 inches; very cobbly clay
R—18 to 28 inches; bedrock

Dissimilar Minor Components

Ratto soils
Percentage of map unit: 10 percent
Landform: Fan remnants, lava plateaus

Raz soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

416—Locane-Anawalt complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,680 to 6,040 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Locane and similar soils: 45 percent
Anawalt and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Locane

Setting

Landform: Lava plateaus

Properties and qualities

Parent material: Colluvium and residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: CLAYEY 10-12 PZ (R023XY220OR)

Typical profile

A1—0 to 2 inches; cobbly clay loam
A2—2 to 10 inches; clay loam
Bt—10 to 18 inches; very cobbly clay
R—18 to 28 inches; bedrock

Characteristics of Anawalt

Setting

Landform: Lava plateaus

Properties and qualities

Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 10-12 PZ (R023XY214OR)

Typical profile

A—0 to 3 inches; loam
Bt1—3 to 7 inches; cobbly clay loam
Bt2—7 to 18 inches; cobbly clay
R—18 to 28 inches; bedrock

Dissimilar Minor Components

Ninemile soils

Percentage of map unit: 5 percent
Landform: Lava plateaus

Ratto soils
Percentage of map unit: 5 percent
Landform: Fan remnants, lava plateaus

Raz soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

417—Locane-Deseed complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,480 to 5,880 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Locane and similar soils: 45 percent
Deseed and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Locane

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYEY 10-12 PZ (R023XY220OR)

Typical profile
A1—0 to 2 inches; very gravelly sandy loam
A2—2 to 10 inches; clay loam
Bt—10 to 18 inches; very cobbly clay
R—18 to 28 inches; bedrock

Characteristics of Deseed

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Residuum and colluvium derived from volcanic rock such as basalt or welded tuff

Slope range: 2 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYEY 10-12 PZ (R023XY220OR)

Typical profile
A1—0 to 2 inches; very cobbly sandy loam
A2—2 to 6 inches; cobbly loam
Bt1—6 to 11 inches; gravelly clay loam
Bt2—11 to 17 inches; clay
Bt3—17 to 24 inches; gravelly sandy clay loam
R—24 to 34 inches; bedrock

Dissimilar Minor Components

Carvix soils
Percentage of map unit: 5 percent
Landform: High stream terraces

Brezniak soils
Percentage of map unit: 5 percent
Landform: Deeply dissected lava plateaus

Fitzwater soils
Percentage of map unit: 5 percent
Landform: Canyon walls

418—Locolake extremely cobbly sandy loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Hills, lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,330 to 5,410 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Locolake and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Locolake

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Mixed eolian deposits over residuum derived from volcanic rock such as basalt

Slope range: 2 to 15 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 19 to 24 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Sodicity (maximum): Sodium adsorption ratio about 45
Available water capacity: Very low (about 1.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A—0 to 2 inches; extremely cobbly sandy loam
E—2 to 4 inches; sandy loam
2Btn—4 to 7 inches; clay loam
2Btkn—7 to 12 inches; clay loam
2Bknq—12 to 19 inches; extremely gravelly loam
2Bkqm—19 to 23 inches; cemented material
2R—23 to 33 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 5 percent

Playas
Percentage of map unit: 5 percent
Landform: Playas

Thompsoncabin soils
Percentage of map unit: 5 percent
Landform: Hillslopes

419—Locolake-McConnel complex, 3 to 10 percent slopes

Map Unit Setting

General landscape: Hills, lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 5,050 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Locolake and similar soils: 65 percent
McConnel and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Locolake

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Mixed eolian deposits over residuum derived from volcanic rock such as basalt
Slope range: 3 to 10 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 19 to 24 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 45
Available water capacity: Very low (about 1.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A—0 to 2 inches; fine sandy loam
E—2 to 4 inches; sandy loam
2Btn—4 to 7 inches; clay loam
2Btkn—7 to 12 inches; clay loam
2Bknq—12 to 19 inches; extremely gravelly loam
2Bkqm—19 to 23 inches; cemented material
2R—23 to 33 inches; bedrock

Characteristics of McConnel

Setting
Landform: Pediments, lake terraces, beach terraces

Properties and qualities
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 3 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC TERRACE 6-10 PZ (R024XY014OR)

Typical profile
A—0 to 1 inch; gravelly loamy sand
Bw—1 to 12 inches; sandy loam
2BC—12 to 18 inches; gravelly sandy loam
2Bk—18 to 60 inches; very gravelly sand

Dissimilar Minor Components

Diablopeak soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Lyeflat soils
Percentage of map unit: 5 percent
Landform: Hillslopes

420—Lostforest-Sandrock-Morehouse complex, 0 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,300 to 4,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Lostforest and similar soils: 45 percent
Sandrock and similar soils: 30 percent
Morehouse and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Lostforest

Setting
Landform: Structural benches

Properties and qualities
Parent material: Volcanic ash and slope alluvium derived from volcanic rock such as basaltic tuff or tuff breccia
Slope range: 1 to 5 percent
Depth to restrictive feature: 20 to 26 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE TERRACE 8-10 PZ (R006XA213OR)

Typical profile
A1—0 to 2 inches; ashy very fine sandy loam
A2—2 to 5 inches; ashy fine sandy loam
Bw—5 to 11 inches; ashy loam
2Bk—11 to 18 inches; cobbly ashy loam

2Bkq—18 to 22 inches; cobbly ashy loam
3R—22 to 32 inches; bedrock

Characteristics of Sandrock

Setting
Landform: Structural benches

Properties and qualities
Parent material: Volcanic ash and slope alluvium derived from volcanic rock such as basaltic tuff or tuff breccia
Slope range: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: VERY SHALLOW PUMICE TERRACE 8-11 PZ (R006XA217OR)

Typical profile
A—0 to 3 inches; channery ashy fine sandy loam
BA—3 to 8 inches; channery ashy fine sandy loam
Bt—8 to 12 inches; channery ashy sandy clay loam
R—12 to 22 inches; bedrock

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 2 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: FORESTED SANDY LOAM 8-11 PZ (R006XA212OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand

C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Firelake soils
Percentage of map unit: 8 percent
Landform: Structural benches, hillslopes

Rock outcrop
Percentage of map unit: 2 percent

422—Ludi gravelly ashy fine sandy loam, 15 to 35 percent south slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,100 to 5,660 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ludi and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ludi

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JD SHRUBBY MOUNTAIN SOUTH 12-16 PZ (R010XB046OR)

Typical profile
A1—0 to 3 inches; gravelly ashy fine sandy loam
A2—3 to 12 inches; very gravelly ashy very fine sandy loam
Bw—12 to 35 inches; extremely cobbly ashy very fine sandy loam
2C—35 to 60 inches; cinders

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Henkle soils
Percentage of map unit: 5 percent
Landform: Volcanic cones

Derallo soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

423—Ludi gravelly ashy sandy loam, low precipitation, 15 to 30 percent north slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,440 to 5,660 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ludi, low precipitation, north, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ludi, Low Precipitation, North

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE NORTH SLOPES 10-12 PZ (R023XY613OR)

Typical profile
A1—0 to 3 inches; gravelly ashy sandy loam
A2—3 to 12 inches; very gravelly ashy very fine sandy loam
Bw—12 to 35 inches; extremely cobbly ashy very fine sandy loam
2C—35 to 60 inches; cinders

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 6 percent

Wanoga soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Henkle soils
Percentage of map unit: 4 percent
Landform: Volcanic cones

424—Ludi gravelly ashy sandy loam, low precipitation, 15 to 30 percent south slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 5,350 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ludi, low precipitation, south, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ludi, Low Precipitation, South

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE SOUTH 10-12 PZ (R010XA007OR)

Typical profile
A1—0 to 3 inches; gravelly ashy sandy loam
A2—3 to 12 inches; very gravelly ashy very fine sandy loam
Bw—12 to 35 inches; extremely cobbly ashy very fine sandy loam
2C—35 to 60 inches; cinders

Dissimilar Minor Components

Glencabin soils
Percentage of map unit: 10 percent
Landform: Mountain slopes

Rock outcrop
Percentage of map unit: 5 percent

425—Ludi gravelly ashy sandy loam, low precipitation, 15 to 50 percent north slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 5,350 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ludi, low precipitation, north, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ludi, Low Precipitation, North

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 15 to 50 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)

Typical profile
A1—0 to 3 inches; gravelly ashy sandy loam
A2—3 to 12 inches; very gravelly ashy very fine sandy loam
Bw—12 to 35 inches; extremely cobbly ashy very fine sandy loam
2C—35 to 60 inches; cinders

Dissimilar Minor Components

Redcliff soils, south
Percentage of map unit: 5 percent
Landform: Mountain slopes

Glencabin soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

Rock outcrop
Percentage of map unit: 5 percent

426—Ludi gravelly ashy loam, low precipitation, 30 to 50 percent south slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,440 to 6,110 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ludi, low precipitation, south, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ludi, Low Precipitation, South

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 30 to 50 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE SOUTH 10-12 PZ (R010XA007OR)

Typical profile
A1—0 to 3 inches; gravelly ashy sandy loam
A2—3 to 12 inches; very gravelly ashy very fine sandy loam
Bw—12 to 35 inches; extremely cobbly ashy very fine sandy loam
2C—35 to 60 inches; cinders

Dissimilar Minor Components

Glencabin soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

Redcliff soils, south
Percentage of map unit: 5 percent
Landform: Mountain slopes

Rock outcrop
Percentage of map unit: 5 percent

427—Ludi very gravelly ashy sandy loam, 15 to 35 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 5,030 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ludi and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ludi

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JD SHRUBBY MOUNTAIN NORTH 12-16 PZ (R010XB071OR)

Typical profile
A1—0 to 3 inches; very gravelly ashy sandy loam
A2—3 to 12 inches; very gravelly ashy very fine sandy loam
Bw—12 to 35 inches; extremely cobbly ashy very fine sandy loam
2C—35 to 60 inches; cinders

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Ludi soils, south slopes
Percentage of map unit: 5 percent
Landform: Cinder cones

428—Ludi-Glassbutte-Ludi, north complex, 15 to 50 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,850 to 5,250 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ludi, south, and similar soils: 35 percent
Glassbutte and similar soils: 30 percent
Ludi, north, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Ludi, South

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 15 to 50 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 12-16 PZ (R023XY302OR)

Typical profile
A1—0 to 3 inches; extremely gravelly ashy sandy loam
A2—3 to 12 inches; very gravelly ashy very fine sandy loam
Bw—12 to 35 inches; extremely cobbly ashy very fine sandy loam
2C—35 to 60 inches; cinders

Characteristics of Glassbutte

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 15 to 50 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW NORTH 12-16 PZ (R023XY312OR)

Typical profile
A1—0 to 4 inches; very gravelly ashy fine sand
A2—4 to 12 inches; very gravelly ashy sandy loam
Bw—12 to 22 inches; very gravelly ashy sandy loam
C—22 to 36 inches; extremely gravelly ashy loamy sand
2C—36 to 60 inches; cinders

Characteristics of Ludi, North

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 15 to 50 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 3 inches; gravelly ashy sandy loam
A2—3 to 12 inches; very gravelly ashy very fine sandy loam
Bw—12 to 35 inches; extremely cobbly ashy very fine sandy loam
2C—35 to 60 inches; cinders

Dissimilar Minor Components

Derallo soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

Rock outcrop
Percentage of map unit: 5 percent

Connleyhills soils
Percentage of map unit: 3 percent
Landform: Lava plateaus

Moonbeam soils
Percentage of map unit: 2 percent
Landform: Lava plateaus

429—Ludi-Glassbutte complex, 15 to 50 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,760 to 5,350 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ludi and similar soils: 50 percent
Glassbutte and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Ludi

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 15 to 50 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)

Typical profile
A1—0 to 3 inches; very cobbly ashy sandy loam
A2—3 to 12 inches; very gravelly ashy very fine sandy loam
Bw—12 to 35 inches; extremely cobbly ashy very fine sandy loam
2C—35 to 60 inches; cinders

Characteristics of Glassbutte

Setting
Landform: Cinder cones

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 15 to 50 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW NORTH 12-16 PZ (R023XY312OR)

Typical profile
A1—0 to 4 inches; very gravelly ashy sandy loam
A2—4 to 12 inches; very gravelly ashy sandy loam
Bw—12 to 22 inches; very gravelly ashy sandy loam
C—22 to 36 inches; extremely gravelly ashy loamy sand
2C—36 to 60 inches; cinders

Dissimilar Minor Components

Connleyhills soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Dunres soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Rock outcrop
Percentage of map unit: 5 percent

430—Lyeflat ashy coarse sand, 1 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,640 to 5,760 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Lyeflat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Lyeflat

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Volcanic ash over mixed lacustrine deposits and residuum derived from basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 10
Available water capacity: Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A—0 to 2 inches; ashy coarse sand
Bq1—2 to 15 inches; loamy coarse sand
Bq2—15 to 22 inches; very gravelly loamy coarse sand
R—22 to 32 inches; bedrock

Dissimilar Minor Components

Flagstaff soils
Percentage of map unit: 5 percent
Landform: Lakebeds

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

431—Lyeflat very gravelly very fine sandy loam, 20 to 50 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 5,040 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Lyeflat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Lyeflat

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Mixed eolian deposits and colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 50 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)

Typical profile
An—0 to 3 inches; very gravelly very fine sandy loam
Bn—3 to 11 inches; gravelly sandy loam
R—11 to 21 inches; bedrock

Dissimilar Minor Components

Thompsoncabin soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Wildhill soils
Percentage of map unit: 5 percent
Landform: Bedrock-controlled lake terrace escarpments

432—Lyeflat-Lyeflat, very cobbly-Rock outcrop complex, 2 to 50 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,290 to 4,770 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Lyeflat, gravelly sandy loam surface, and similar soils: 45 percent
Lyeflat, very cobbly sandy loam surface, and similar soils: 25 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Lyeflat, Gravelly Sandy Loam Surface

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Mixed eolian deposits and colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very low (about 0.7 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
An—0 to 3 inches; gravelly sandy loam
Bn—3 to 11 inches; gravelly sandy loam
R—11 to 21 inches; bedrock

Characteristics of Lyeflat, Very Cobbly Sandy Loam Surface

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Mixed eolian deposits and colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 50 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very low (about 0.5 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)

Typical profile
An—0 to 3 inches; very cobbly sandy loam
Bn—3 to 11 inches; gravelly sandy loam
R—11 to 21 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 50 percent

Dissimilar Minor Components

Deppy soils
Percentage of map unit: 10 percent
Landform: Fan remnants

Kewake soils
Percentage of map unit: 3 percent
Landform: Dunes

Wildhill soils
Percentage of map unit: 2 percent
Landform: Bedrock-controlled lake terrace escarpments

433—Lyeflat-Rock outcrop complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,270 to 5,070 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Lyeflat and similar soils: 65 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Lyeflat

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Mixed eolian deposits and colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very low (about 0.5 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
An—0 to 3 inches; very cobbly sandy loam
Bn—3 to 11 inches; gravelly sandy loam
R—11 to 21 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 2 to 20 percent

Dissimilar Minor Components

Deppy soils
Percentage of map unit: 10 percent
Landform: Fan remnants

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

434—McConnel cobbly sandy loam, 3 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,370 to 4,620 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

McConnel and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of McConnel

Setting
Landform: Beach terraces, lake terraces

Properties and qualities
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 4e
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
A—0 to 1 inch; cobbly sandy loam
Bw—1 to 12 inches; sandy loam
2BC—12 to 18 inches; gravelly sandy loam
2Bk—18 to 60 inches; very gravelly sand

Dissimilar Minor Components

Raz soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Brace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Calderwood soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

435—McConnel gravelly sandy loam, sodic substratum, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,260 to 4,600 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

McConnel, sodic substratum, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of McConnel, Sodic Substratum

Setting
Landform: Lake terraces, beach terraces

Properties and qualities
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A—0 to 1 inch; gravelly sandy loam
Bw—1 to 12 inches; sandy loam
2BC—12 to 18 inches; gravelly sandy loam
2Bk—18 to 60 inches; very gravelly sand

Dissimilar Minor Components

Mesman soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

436—McConnel very gravelly sandy loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,930 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

McConnel and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of McConnel

Setting
Landform: Beach terraces, lake terraces

Properties and qualities
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 4e
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
A—0 to 1 inch; very gravelly sandy loam
Bw—1 to 12 inches; sandy loam
2BC—12 to 18 inches; gravelly sandy loam
2Bk—18 to 60 inches; very gravelly sand

Dissimilar Minor Components

Pait soils
Percentage of map unit: 10 percent
Landform: Dissected lake terraces, strath terrace escarpments

Old Camp soils
Percentage of map unit: 5 percent
Landform: Hillslopes

437—McConnel very gravelly sandy loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 5,200 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

McConnel and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of McConnel

Setting
Landform: Beach terraces, lake terraces

Properties and qualities
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 4e
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
A—0 to 1 inch; very gravelly sandy loam
Bw—1 to 12 inches; sandy loam
2BC—12 to 18 inches; gravelly sandy loam
2Bk—18 to 60 inches; very gravelly sand

Dissimilar Minor Components

Pait soils
Percentage of map unit: 10 percent
Landform: Dissected lake terraces, strath terrace escarpments

Old Camp soils
Percentage of map unit: 5 percent
Landform: Hillslopes

438—McConnel-Davey complex, 15 to 45 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,930 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

McConnel and similar soils: 55 percent
Davey and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of McConnel

Setting
Landform: Pediments, beach terraces

Properties and qualities
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 15 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)

Typical profile
A—0 to 1 inch; extremely gravelly sandy loam
Bw—1 to 12 inches; sandy loam
2BC—12 to 18 inches; gravelly sandy loam
2Bk—18 to 60 inches; very gravelly sand

Characteristics of Davey

Setting
Landform: Fan skirts, alluvial fans

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 15 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 6.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)

Typical profile
A—0 to 3 inches; fine sandy loam
Bw—3 to 23 inches; sandy loam
C—23 to 60 inches; loamy fine sand

Dissimilar Minor Components

Atlow soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Lyeflat soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Yankeewell soils
Percentage of map unit: 5 percent
Landform: Hillslopes

439—McConnel-Poorjug complex, 1 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,800 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

McConnel and similar soils: 55 percent
Poorjug, overblown, and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of McConnel

Setting
Landform: Pediments, beach terraces

Properties and qualities
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 1 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
A—0 to 1 inch; gravelly loamy sand
Bw—1 to 12 inches; sandy loam
2BC—12 to 18 inches; gravelly sandy loam
2Bk—18 to 60 inches; very gravelly sand

Characteristics of Poorjug, Overblown

Setting
Landform: Pediments

Properties and qualities
Parent material: Slope alluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 1 to 15 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY LOAM 8-10 PZ (R024XY018OR)

Typical profile
A—0 to 13 inches; gravelly loamy sand
Bw—13 to 19 inches; gravelly loam
R—19 to 29 inches; bedrock

Dissimilar Minor Components

Catlow soils
Percentage of map unit: 5 percent
Landform: Old beach terraces, old lake terraces

Mesman soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

440—McConnel-Turpin complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,250 to 4,510 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

McConnel and similar soils: 45 percent
Turpin and similar soils: 45 percent
Dissimilar minor components: 10 percent

Characteristics of McConnel

Setting
Landform: Beach plains

Properties and qualities
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 5 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)

Typical profile
A—0 to 1 inch; very gravelly sandy loam
Bw—1 to 12 inches; sandy loam
2BC—12 to 18 inches; gravelly sandy loam
2Bk—18 to 60 inches; very gravelly sand

Characteristics of Turpin

Setting
Landform: Beach plains

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 2 to 5 percent
Percentage of surface area covered by rock fragments: 0 to 10 percent with gravel
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 8 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC TERRACE 6-10 PZ (R024XY014OR)

Typical profile
A1—0 to 4 inches; fine sandy loam
A2—4 to 12 inches; gravelly sandy loam
Ckn—12 to 62 inches; loamy fine sand

Dissimilar Minor Components

Catlow soils
Percentage of map unit: 5 percent
Landform: Old beach terraces, old lake terraces

Davey soils
Percentage of map unit: 5 percent
Landform: Fan skirts, alluvial fans

441—McNye-Wildhill-Rock outcrop complex, 20 to 50 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,440 to 6,150 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

McNye and similar soils: 35 percent
Wildhill and similar soils: 30 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Characteristics of McNye

Setting
Landform: Bedrock-controlled lake terrace escarpments

Properties and qualities
Parent material: Mixed eolian deposits, alluvium, and colluvium derived from volcanic rock such as basalt
Slope range: 20 to 50 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 8-10 PZ (R024XY638OR)

Typical profile
A—0 to 7 inches; cobbly loam
Bk—7 to 16 inches; very gravelly sandy loam
BC—16 to 42 inches; stratified extremely cobbly loamy sand to extremely gravelly loamy sand
2R—42 to 52 inches; bedrock

Characteristics of Wildhill

Setting
Landform: Bedrock-controlled lake terrace escarpments

Properties and qualities
Parent material: Mixed eolian deposits, alluvium, and colluvium derived from volcanic rock such as basalt
Slope range: 20 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 20
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)

Typical profile
A1—0 to 2 inches; extremely cobbly sandy loam
A2—2 to 9 inches; very cobbly fine sandy loam
Btn—9 to 14 inches; very cobbly sandy clay loam
Btknq—14 to 25 inches; very cobbly sandy clay loam
R—25 to 35 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 50 percent

Dissimilar Minor Components

Felcher soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Lyeflat soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Thompsoncabin soils
Percentage of map unit: 5 percent
Landform: Hillslopes

442—Meld-Giranch complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,600 to 4,950 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Meld and similar soils: 45 percent
Giranch and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Meld

Setting
Landform: Fan remnants

Properties and qualities
Parent material: Volcanic ash mixed with alluvium derived from mixed volcanic rock
Slope range: 2 to 20 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A—0 to 3 inches; ashy loam
Bt1—3 to 16 inches; ashy clay loam
Bt2—16 to 33 inches; very gravelly ashy clay loam
Bqm—33 to 40 inches; cemented material

Characteristics of Giranch

Setting
Landform: Fan remnants

Properties and qualities
Parent material: Volcanic ash mixed with alluvium derived from mixed volcanic rock
Slope range: 2 to 20 percent
Depth to restrictive feature: 22 to 36 inches to a very strongly cemented duripan
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A—0 to 11 inches; gravelly ashy loam
Bt1—11 to 23 inches; very gravelly ashy sandy clay loam
Bt2—23 to 29 inches; gravelly clay
Btq—29 to 33 inches; clay loam
2Bkqm—33 to 60 inches; cemented material

Dissimilar Minor Components

Goodtack soils
Percentage of map unit: 8 percent
Landform: Lava plateaus

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 2 percent

443—Menbo stony loam, dry, 5 to 25 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 4,650 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Menbo, dry, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Menbo, Dry

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Mixed volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 5 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY LOAM 10-12 PZ (R023XY516OR)

Typical profile
A1—0 to 3 inches; stony ashy loam
A2—3 to 8 inches; gravelly ashy loam
2Bt—8 to 26 inches; very cobbly clay loam
2R—26 to 36 inches; bedrock

Dissimilar Minor Components

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

Reluctan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus, hillslopes

444—Merlin extremely stony loam, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,820 to 6,270 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Merlin and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Merlin

Setting
Landform: Lava plateaus, calderas, plug domes

Properties and qualities
Parent material: Residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW STONY 10-20 PZ (R021XY204OR)

Typical profile
A—0 to 4 inches; extremely stony loam
BAt—4 to 7 inches; gravelly clay loam
Bt—7 to 18 inches; clay
R—18 to 28 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 10 percent

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

445—Mesman fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,260 to 4,610 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Mesman and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Mesman

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 20 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 30
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
An1—0 to 2 inches; fine sandy loam
An2—2 to 7 inches; sandy loam

2Btnqz—7 to 26 inches; sandy clay loam
3Bkn—26 to 72 inches; fine sandy loam

Dissimilar Minor Components

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

McConnel soils
Percentage of map unit: 5 percent
Landform: Beach terraces, lake terraces

Zorravista soils
Percentage of map unit: 5 percent
Landform: Semi-stablized dunes, sand sheets

446—Mesman fine sandy loam, slightly alkaline, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,460 to 4,690 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Mesman, slightly alkaline, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Mesman, Slightly Alkaline

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 20 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 30
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
An1—0 to 2 inches; fine sandy loam
An2—2 to 7 inches; sandy loam

2Btnqz—7 to 26 inches; sandy clay loam
3Bkn—26 to 72 inches; fine sandy loam

Dissimilar Minor Components

Flagstaff soils
Percentage of map unit: 4 percent
Landform: Lakebeds

Catlow soils
Percentage of map unit: 4 percent
Landform: Old beach terraces, old lake terraces

Hinton soils
Percentage of map unit: 4 percent
Landform: Lake terraces

Enko soils
Percentage of map unit: 3 percent
Landform: Swales, fan piedmonts

447—Mesman-McConnel-Kewake complex, 2 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,690 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Mesman and similar soils: 40 percent
McConnel and similar soils: 25 percent
Kewake and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Mesman

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from mixed volcanic rock
Slope range: 2 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 20 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 30
Available water capacity: Low (about 4.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
An1—0 to 2 inches; gravelly sandy loam
An2—2 to 7 inches; sandy loam
2Btnqz—7 to 26 inches; sandy clay loam
3Bkn—26 to 72 inches; fine sandy loam

Characteristics of McConnel

Setting
Landform: Beach terraces, lake terraces

Properties and qualities
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 2 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC TERRACE 6-10 PZ (R024XY014OR)

Typical profile
A—0 to 1 inch; very gravelly sandy loam
Bw—1 to 12 inches; sandy loam
2BC—12 to 18 inches; gravelly sandy loam
2Bk—18 to 60 inches; very gravelly sand

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 2 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy loamy sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Flagstaff soils
Percentage of map unit: 10 percent
Landform: Lake terraces

Rubble land
Percentage of map unit: 5 percent

448—Milcan ashy loamy sand, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,440 to 4,600 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Milcan and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Milcan

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE FLAT 8-10 PZ (R010XA027OR)

Typical profile
A1—0 to 2 inches; ashy loamy sand
A2—2 to 10 inches; ashy sandy loam

Bq—10 to 34 inches; ashy loamy fine sand
Bqm—34 to 44 inches; cemented material

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Crackedground soils
Percentage of map unit: 5 percent
Landform: Lava plains

449—Milcan-Jacksplace-Rock outcrop complex, 1 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,390 to 4,860 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Milcan and similar soils: 40 percent
Jacksplace and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Milcan

Setting
Landform: Lava plains

Properties and qualities
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A1—0 to 2 inches; ashy loam
A2—2 to 10 inches; ashy sandy loam
Bq—10 to 34 inches; ashy loamy fine sand
Bqm—34 to 44 inches; cemented material

Characteristics of Jacksplace

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 24 to 32 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A1—0 to 4 inches; stony ashy sandy loam
A2—4 to 9 inches; cobbly ashy sandy loam
Bt1—9 to 12 inches; very stony ashy sandy loam
Bt2—12 to 20 inches; extremely stony ashy sandy clay loam
C—20 to 26 inches; extremely stony ashy sandy loam
R—26 to 30 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 2 to 15 percent

Dissimilar Minor Components

Jacksplace soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Wiskan soils
Percentage of map unit: 5 percent
Landform: Escarpments on lava plateaus

450—Millenium ashy silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,470 to 5,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Millenium and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Millenium

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very high (about 13.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: DRY LAKEBED 10-12 PZ (R023XY512OR)

Typical profile
A1—0 to 3 inches; ashy silt loam
A2—3 to 9 inches; ashy fine sandy loam
Bt—9 to 22 inches; ashy sandy clay loam
Btq—22 to 30 inches; ashy sandy loam
BCq—30 to 47 inches; stratified ashy loamy sand to ashy silty clay loam
C—47 to 65 inches; ashy loamy fine sand

Dissimilar Minor Components

Oatmanflat soils
Percentage of map unit: 10 percent
Landform: Stream terraces

Swalesilver soils
Percentage of map unit: 5 percent
Landform: Lake terraces

451—Millenium ashy silt loam, basin floor, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,370 to 4,950 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Millenium, basin floor, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Millenium, Basin Floor

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very high (about 13.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: PUMICE FLAT 10-12 PZ (R023XY508OR)

Typical profile
A1—0 to 3 inches; ashy silt loam
A2—3 to 9 inches; ashy fine sandy loam
Bt—9 to 22 inches; ashy sandy clay loam
Btq—22 to 30 inches; ashy sandy loam
BCq—30 to 47 inches; stratified ashy loamy sand to ashy silty clay loam
C—47 to 65 inches; ashy loamy fine sand

Dissimilar Minor Components

Lapham soils
Percentage of map unit: 10 percent
Landform: Lake terraces

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

452—Millenium-Stauffer-Raztack complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,560 to 4,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Millenium and similar soils: 35 percent
Stauffer and similar soils: 30 percent
Raztack and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Millenium

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very high (about 13.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: STIPA FESCUE BASIN 8-11 PZ (R023XY670OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 9 inches; ashy fine sandy loam
Bt—9 to 22 inches; ashy sandy clay loam
Btq—22 to 30 inches; ashy sandy loam
BCq—30 to 47 inches; stratified ashy loamy sand to ashy silty clay loam
C—47 to 65 inches; ashy loamy fine sand

Characteristics of Stauffer

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very high (about 13.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A—0 to 8 inches; ashy fine sandy loam
Bt—8 to 26 inches; ashy clay loam
Btq—26 to 45 inches; ashy clay loam
C—45 to 66 inches; ashy sandy loam

Characteristics of Raztack

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: 40 to 60 inches to a weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)

Seasonal high water table (minimum depth): At the soil surface to a depth of 6 inches (see Water Features table)
Available water capacity: High (about 10.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SHALLOW SWALE 10-14 PZ (R023XY324OR)

Typical profile
A—0 to 4 inches; ashy very fine sandy loam
Bt1—4 to 14 inches; ashy clay loam
Bt2—14 to 33 inches; clay
Bt3—33 to 44 inches; clay loam
2Bqm—44 to 50 inches; cemented loamy sand
2C—50 to 70 inches; stratified loamy sand to clay loam

Dissimilar Minor Components

Borobey soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Playas
Percentage of map unit: 5 percent
Landform: Playas

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

455—Moonbeam cobbly ashy fine sandy loam, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,660 to 5,100 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; cobbly ashy fine sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Millenium soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Rock outcrop
Percentage of map unit: 5 percent

456—Moonbeam cobbly ashy loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,460 to 5,000 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 3 inches; cobbly ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 5 percent

Senra soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Silverash soils
Percentage of map unit: 5 percent
Landform: Closed depressions of lava plateaus

457—Moonbeam extremely cobbly ashy loam, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,460 to 5,720 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SHALLOW STONY 10-20 PZ (R021XY204OR)

Typical profile
A1—0 to 3 inches; extremely cobbly ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Norcross soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

458—Moonbeam very gravelly ashy loam, 1 to 12 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,440 to 5,360 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 12 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; very gravelly ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Senra soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

459—Moonbeam very cobbly ashy loam, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 5,630 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 10-12 PZ (R023XY214OR)

Typical profile
A1—0 to 3 inches; very cobbly ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Lastcall soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

460—Moonbeam very cobbly ashy loam, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,680 to 5,530 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 3 inches; very cobbly ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay

2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Sliptrack soils
Percentage of map unit: 10 percent
Landform: Depressions of lava plateaus

Lastcall soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

461—Moonbeam-Connleyhills complex, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,460 to 5,050 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 45 percent
Connleyhills and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JD SHRUBBY CLAYPAN 12-16 PZ (R010XB082OR)

Typical profile
A1—0 to 3 inches; stony ashy sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay

2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Characteristics of Connleyhills

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY LOAM 10-12 PZ (R023XY516OR)

Typical profile
A1—0 to 4 inches; gravelly ashy sandy loam
A2—4 to 11 inches; ashy coarse sandy loam
2Bt1—11 to 15 inches; very cobbly ashy clay loam
2Bt2—15 to 22 inches; very cobbly clay
2Bt3—22 to 29 inches; clay
3Bt4—29 to 32 inches; very stony ashy clay loam
3R—32 to 42 inches; bedrock

Dissimilar Minor Components

Sliptrack soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

Goodtack soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Greenmountain soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

462—Moonbeam-Goodtack complex, 1 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,410 to 4,940 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 45 percent
Goodtack and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 10 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 3 inches; ashy very fine sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Characteristics of Goodtack

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 10 percent
Depth to restrictive features: 16 to 20 inches to an indurated duripan, 20 to 48 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 3 inches; cobbly ashy very fine sandy loam
A2—3 to 7 inches; ashy fine sandy loam
Bt—7 to 19 inches; ashy fine sandy loam
Bkqm—19 to 46 inches; cemented material
R—46 to 56 inches; bedrock

Dissimilar Minor Components

Senra soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Jacksplace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

463—Moonbeam-Goodtack complex, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 5,030 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 50 percent
Goodtack and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER CLAYPAN 12-16 PZ (R021XY505OR)

Typical profile
A1—0 to 3 inches; cobbly ashy fine sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam

2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Characteristics of Goodtack

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 8 percent
Depth to restrictive features: 16 to 20 inches to an indurated duripan, 20 to 48 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE TERRACE 8-10 PZ (R006XA213OR)

Typical profile
A1—0 to 3 inches; gravelly ashy coarse sandy loam
A2—3 to 7 inches; ashy fine sandy loam
Bt—7 to 19 inches; ashy fine sandy loam
Bkqm—19 to 46 inches; cemented material
R—46 to 56 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Dunres soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Henkle soils
Percentage of map unit: 5 percent
Landform: Volcanic cones

464—Moonbeam-Hayespring complex, 2 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,850 to 5,310 feet
Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 65 percent
Hayespring and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 8 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; stony ashy fine sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Characteristics of Hayespring

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 8 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE 9-12 PZ (R023XY515OR)

Typical profile
A1—0 to 3 inches; very stony ashy fine sandy loam
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Dissimilar Minor Components

Overallflat soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Rubble land
Percentage of map unit: 5 percent

465—Moonbeam-Hayespring complex, moist, 2 to 12 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,960 to 5,200 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam, moist, and similar soils: 60 percent
Hayespring, moist, and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam, Moist

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 12 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JD SHRUBBY CLAYPAN 12-16 PZ (R010XB082OR)

Typical profile
A1—0 to 3 inches; cobbly ashy very fine sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam

2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Characteristics of Hayespring, Moist

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 12 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 10-12 PZ (R023XY210OR)

Typical profile
A1—0 to 3 inches; stony ashy fine sandy loam
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Dissimilar Minor Components

Senra soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

466—Moonbeam-Meld complex, 2 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 4,910 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 45 percent
Meld and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 8 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 3 inches; gravelly ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Characteristics of Meld

Setting
Landform: Fan remnants

Properties and qualities
Parent material: Volcanic ash mixed with alluvium derived from mixed volcanic rock
Slope range: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A—0 to 3 inches; gravelly ashy very fine sandy loam
Bt1—3 to 16 inches; ashy clay loam
Bt2—16 to 33 inches; very gravelly ashy clay loam
Bqm—33 to 40 inches; cemented material

Dissimilar Minor Components

Hayespring soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Giranch soils
Percentage of map unit: 5 percent
Landform: Fan remnants

Jacksplace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

467—Moonbeam-Senra complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,700 to 4,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 65 percent
Senra and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; very stony ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 20 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; cobbly ashy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

468—Moonbeam-Senra complex, gravelly, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,580 to 5,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam, gravelly ashy fine sandy loam surface, and similar soils: 60 percent
Senra and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Moonbeam, Gravelly Ashy Fine Sandy Loam Surface

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt

Slope range: 1 to 5 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; gravelly ashy fine sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 5 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Lastcall soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Raztack soils
Percentage of map unit: 3 percent
Landform: Lakebeds

Norcross soils
Percentage of map unit: 2 percent
Landform: Lava plateaus

469—Moonbeam-Senra-Hayespring complex, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,830 to 5,060 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Moonbeam and similar soils: 50 percent
Senra and similar soils: 20 percent
Hayespring and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 8 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; gravelly ashy fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Characteristics of Hayespring

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A1—0 to 3 inches; stony ashy very fine sandy loam
A2—3 to 10 inches; stony ashy fine sandy loam

Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 7 percent

Oatmanflat soils
Percentage of map unit: 3 percent
Landform: Swales of lava plateaus

470—Morehouse ashy loamy fine sand, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,570 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Morehouse and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Abert soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

471—Morehouse ashy loamy fine sand, 1 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,840 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Morehouse and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 1 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER DUNES 8-10 PZ (R006XA219OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Dune land
Percentage of map unit: 10 percent
Landform: Dunes of dunefields

Fort Rock soils
Percentage of map unit: 5 percent
Landform: Lake terraces

472—Morehouse ashy loamy fine sand, 2 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,840 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Morehouse and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 2 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE DUNES 8-10 PZ (R023XY610OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Abert soils
Percentage of map unit: 8 percent
Landform: Lakebeds

Salhouse soils
Percentage of map unit: 7 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

473—Morehouse ashy loamy fine sand, high precipitation, 15 to 35 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,650 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Morehouse and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Morehouse

Setting
Landform: Sandy escarpments

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock
Slope range: 15 to 35 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SANDY SLOPES 8-11 PZ (R006XA218OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 60 inches; ashy loamy sand

Dissimilar Minor Components

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

Rock outcrop
Percentage of map unit: 5 percent

474—Morehouse complex, 1 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,300 to 4,530 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Morehouse, ashy fine sand surface, and similar soils: 50 percent
Morehouse, ashy sand surface, and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Morehouse, Ashy Fine Sand Surface

Setting
Landform: Dunes on sand sheets

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 1 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 7.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: FORESTED SANDY LOAM 8-11 PZ (R006XA212OR)

Typical profile
A—0 to 5 inches; ashy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Characteristics of Morehouse, Ashy Sand Surface

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 2 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 7.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: FORESTED PUMICE DUNES 8-11 PZ (R006XA214OR)

Typical profile
A—0 to 5 inches; ashy sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Dune land
Percentage of map unit: 5 percent
Landform: Dunes of dunefields

Lostforest soils
Percentage of map unit: 5 percent
Landform: Structural benches

475—Morehouse-Playas complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,360 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Morehouse and similar soils: 60 percent
Playas: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: PUMICE DUNES 8-10 PZ (R023XY610OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Characteristics of Playas

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Fort Rock soils
Percentage of map unit: 10 percent
Landform: Lake terraces

Bonnick soils
Percentage of map unit: 5 percent
Landform: Lake terraces

476—Morfitt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,460 to 4,840 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 47 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Morfitt and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Morfitt

Setting
Landform: Alluvial fans, basin floors

Properties and qualities
Parent material: Alluvium derived from argillite, shale, and reworked older terrace sediment
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Available water capacity: High (about 11.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Land capability subclass (irrigated): 3c
Ecological site: DRY PONDED CLAY 6-10 PZ (R024XY007OR)

Typical profile
A—0 to 3 inches; loam
BA—3 to 7 inches; loam
Bt—7 to 25 inches; clay loam
C—25 to 60 inches; clay loam

Dissimilar Minor Components

Swalesilver soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Reallis soils
Percentage of map unit: 5 percent
Landform: Alluvial fans, lake terraces

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

477—Murlose cobbly ashy loam, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,530 to 5,000 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Murlose and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Murlose

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Depth to restrictive features: 15 to 19 inches to a strongly cemented duripan, 20 to 24 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 14-18 PZ (R021XY212OR)

Typical profile
A—0 to 11 inches; cobbly ashy loam
Bt—11 to 19 inches; cobbly ashy sandy clay loam
Bqm—19 to 22 inches; cemented material
R—22 to 32 inches; bedrock

Dissimilar Minor Components

Royst soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Norcross soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

478—Murlose gravelly ashy coarse sandy loam, 1 to 6 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,500 to 5,100 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Murlose and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Murlose

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 6 percent
Depth to restrictive features: 15 to 19 inches to a strongly cemented duripan, 20 to 24 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER DRY PINE 14-16 PZ (R021XY508OR)

Typical Profile
A1—0 to 3 inches; gravelly ashy coarse sandy loam
A2—3 to 11 inches; cobbly ashy sandy loam
Bt—11 to 19 inches; cobbly ashy sandy clay loam
Bqm—19 to 22 inches; cemented material
R—22 to 32 inches; bedrock

Dissimilar Minor Components

Glencabin soils
Percentage of map unit: 10 percent
Landform: Hillslopes, buttes

Rock outcrop
Percentage of map unit: 5 percent

479—Ninemile very cobbly loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,550 to 6,700 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ninemile and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ninemile

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A—0 to 2 inches; very cobbly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Dissimilar Minor Components

Carryback soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rubble land
Percentage of map unit: 5 percent

480—Ninemile very cobbly loam, low precipitation, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 5,890 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ninemile, low precipitation, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ninemile, Low Precipitation

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 10-12 PZ (R023XY214OR)

Typical profile
A—0 to 2 inches; very cobbly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Dissimilar Minor Components

Pait soils
Percentage of map unit: 5 percent
Landform: Strath terrace escarpments

Old Camp soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Rubble land
Percentage of map unit: 5 percent

481—Ninemile-Arcia complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,390 to 6,380 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ninemile and similar soils: 45 percent
Arcia and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Ninemile

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A—0 to 2 inches; very cobbly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Characteristics of Arcia

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Residuum and colluvium derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 4 inches; gravelly loam
A2—4 to 12 inches; loam
Bt—12 to 32 inches; clay
R—32 to 42 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

Pernty soils
Percentage of map unit: 5 percent
Landform: Hillslopes

482—Ninemile-Carvix complex, 0 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,260 to 5,380 feet
Mean annual precipitation: 10 to 14 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ninemile and similar soils: 45 percent
Carvix and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Ninemile

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 0 to 8 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A—0 to 2 inches; gravelly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Characteristics of Carvix

Setting
Landform: High stream terraces

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SWALE 10-14 PZ (R023XY202OR)

Typical profile
A—0 to 6 inches; silt loam
BA—6 to 19 inches; silt loam
Bt—19 to 60 inches; loam

Dissimilar Minor Components

Carryback soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

Erakatak soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

483—Ninemile-Edemaps complex, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 5,000 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ninemile and similar soils: 50 percent
Edemaps and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Ninemile

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 2 to 10 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A—0 to 2 inches; gravelly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Characteristics of Edemaps

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Residuum derived from volcanic rock such as rhyolite
Slope range: 2 to 10 percent
Depth to restrictive features: 21 to 24 inches to a very strongly cemented duripan, 23 to 30 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 3 inches; cobbly clay loam
A2—3 to 10 inches; sandy loam
Bt1—10 to 19 inches; gravelly clay loam
Bt2—19 to 24 inches; gravelly clay loam
Bqm—24 to 26 inches; cemented material
R—26 to 30 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Reluctan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Pernty soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

484—Ninemile-Reluctan complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,540 to 5,090 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ninemile and similar soils: 55 percent
Reluctan and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Ninemile

Setting

Landform: Lava plateaus

Properties and qualities

Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 0 to 15 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile

A—0 to 2 inches; very cobbly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Characteristics of Reluctan

Setting

Landform: Lava plateaus

Properties and qualities

Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile

A1—0 to 2 inches; cobbly loam
A2—2 to 9 inches; sandy loam
Bt—9 to 26 inches; sandy clay loam
R—26 to 36 inches; bedrock

Dissimilar Minor Components

Wagontire soils

Percentage of map unit: 8 percent
Landform: Dissected old alluvial terraces

Gradon soils
Percentage of map unit: 7 percent
Landform: Fan remnants

485—Ninemile-Reluctan-Rubble land complex, 2 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,710 to 5,970 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ninemile and similar soils: 50 percent
Reluctan and similar soils: 20 percent
Rubble land: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Ninemile

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 2 to 30 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A—0 to 2 inches; very cobbly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Characteristics of Reluctan

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff

Slope range: 2 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 2 inches; fine sandy loam
A2—2 to 9 inches; sandy loam
Bt—9 to 26 inches; sandy clay loam
R—26 to 36 inches; bedrock

Characteristics of Rubble Land

Description of areas: Accumulations of loose, angular volcanic rock fragments
Slope range: 2 to 30 percent

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Wagontire soils
Percentage of map unit: 5 percent
Landform: Dissected old alluvial terraces

Stampede soils
Percentage of map unit: 5 percent
Landform: Lava plateaus, fan remnants

486—Ninemile-Rock outcrop-Felcher complex, 15 to 35 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,100 to 5,960 feet
Mean annual precipitation: 11 to 12 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Ninemile, north, and similar soils: 35 percent
Rock outcrop: 30 percent
Felcher, south, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Ninemile, North

Setting
Landform: Ridges, hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 15 to 35 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW NORTH 12-16 PZ (R023XY312OR)

Typical profile
A—0 to 2 inches; very cobbly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 35 percent

Characteristics of Felcher, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 4 inches; very cobbly sandy loam
Bw—4 to 14 inches; very cobbly loam
Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Dissimilar Minor Components

Westbutte soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

487—Ninemile-Westbutte complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,840 to 6,100 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ninemile and similar soils: 60 percent
Westbutte and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Ninemile

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A—0 to 2 inches; very cobbly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Characteristics of Westbutte

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 3 inches; extremely stony loam
A2—3 to 11 inches; very cobbly loam
Bw—11 to 21 inches; extremely cobbly clay loam
R—21 to 31 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Felcher soils
Percentage of map unit: 3 percent
Landform: Hillslopes

Riddleranch soils
Percentage of map unit: 2 percent
Landform: Dissected lava plateaus

488—Ninemile-Westbutte-Ninemile extremely stony complex, 2 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,900 to 6,680 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ninemile and similar soils: 40 percent
Westbutte and similar soils: 30 percent
Ninemile, extremely stony surface, and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Ninemile

Setting
Landform: Hillslopes, ridges

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 2 to 30 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A—0 to 2 inches; very cobbly clay loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Characteristics of Westbutte

Setting
Landform: Hillslopes, ridges

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 3 inches; extremely stony loam
A2—3 to 11 inches; very cobbly loam
Bw—11 to 21 inches; extremely cobbly clay loam
R—21 to 31 inches; bedrock

Characteristics of Ninemile, Extremely Stony Surface

Setting
Landform: Hillslopes, ridges

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 2 to 30 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: JUNIPER TABLELAND 10-14 PZ (R023XY217OR)

Typical profile
A—0 to 2 inches; extremely stony silt loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Dissimilar Minor Components

Erakatak soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Pearlwise soils
Percentage of map unit: 5 percent
Landform: Lava plateaus, hillslopes

489—Noidee very stony fine sandy loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,380 to 5,670 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Noidee and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Noidee

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Mixed eolian deposits and residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 12 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 30
Available water capacity: Very low (about 1.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: HIGH SODIC HILLS 8-11 PZ (R024XY648OR)

Typical profile
A—0 to 2 inches; very stony fine sandy loam
Btn—2 to 5 inches; clay
Btkn—5 to 16 inches; sandy clay loam
R—16 to 26 inches; bedrock

Dissimilar Minor Components

Yankeewell soils
Percentage of map unit: 10 percent
Landform: Lava plateaus, hillslopes

Diablopeak soils
Percentage of map unit: 5 percent
Landform: Hillslopes

490—Norcross complex, 1 to 4 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,640 to 5,230 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Norcross, extremely cobbly ashy loam surface, and similar soils: 50 percent
Norcross, cobbly ashy fine sandy loam surface, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Norcross, Extremely Cobbly Ashy Loam Surface

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 4 percent
Depth to restrictive features: 14 to 19 inches to an indurated duripan, 16 to 21 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW STONY 10-20 PZ (R021XY204OR)

Typical profile
A1—0 to 3 inches; extremely cobbly ashy loam
A2—3 to 6 inches; cobbly ashy loam
2Bt—6 to 19 inches; clay
2Bqm—19 to 21 inches; cemented material
2R—21 to 31 inches; bedrock

Characteristics of Norcross, Cobbly Ashy Fine Sandy Loam Surface

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 4 percent
Depth to restrictive features: 14 to 19 inches to an indurated duripan, 16 to 21 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JD SHRUBBY CLAYPAN 12-16 PZ (R010XB082OR)

Typical profile
A1—0 to 3 inches; cobbly ashy fine sandy loam
A2—3 to 6 inches; cobbly ashy loam
2Bt—6 to 19 inches; clay
2Bqm—19 to 21 inches; cemented material
2R—21 to 31 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Senra soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

491—Norcross extremely cobbly ashy loam, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 5,700 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Norcross and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Norcross

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 14 to 19 inches to an indurated duripan, 16 to 21 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: JUNIPER CLAYPAN 12-16 PZ (R021XY505OR)

Typical profile
A1—0 to 3 inches; extremely cobbly ashy loam
A2—3 to 6 inches; cobbly ashy loam
2Bt—6 to 19 inches; clay
2Bqm—19 to 21 inches; cemented material
2R—21 to 31 inches; bedrock

Dissimilar Minor Components

Royst soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

492—Norcross gravelly ashy loam, 1 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,600 to 4,910 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Norcross and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Norcross

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 15 percent

Depth to restrictive features: 14 to 19 inches to an indurated duripan, 16 to 21 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW STONY 10-20 PZ (R021XY204OR)

Typical profile
A1—0 to 3 inches; gravelly ashy loam
A2—3 to 6 inches; cobbly ashy loam
2Bt—6 to 19 inches; clay
2Bqm—19 to 21 inches; cemented material
2R—21 to 31 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 5 percent

Dunres soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Connleyhills soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

493—Oatmanflat ashy very fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,430 to 4,910 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Oatmanflat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Oatmanflat

Setting
Landform: Swales of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 0 to 2 percent
Depth to restrictive feature: 40 to 60 inches to a strongly cemented duripan

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: DRY LAKEBED 10-12 PZ (R023XY512OR)

Typical profile
A1—0 to 3 inches; ashy very fine sandy loam
A2—3 to 12 inches; ashy sandy clay loam
Bw—12 to 28 inches; ashy coarse sandy loam
Btb—28 to 44 inches; ashy clay loam
Btqb—44 to 53 inches; gravelly ashy sandy clay loam
Bkqmb—53 to 64 inches; cemented material

Dissimilar Minor Components

Raztack soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Fort Rock soils
Percentage of map unit: 5 percent
Landform: Lake terraces

494—Oatmanflat-Borobey ashy very fine sandy loams, 0 to 2 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,640 to 4,730 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Oatmanflat and similar soils: 60 percent
Borobey and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Oatmanflat

Setting
Landform: Swales of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 0 to 2 percent
Depth to restrictive feature: 40 to 60 inches to a strongly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: Rare (see Water Features table)

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 11.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: DRY LAKEBED 10-12 PZ (R023XY512OR)

Typical profile
A1—0 to 3 inches; ashy very fine sandy loam
A2—3 to 12 inches; ashy sandy clay loam
Bw—12 to 28 inches; ashy coarse sandy loam
Btb—28 to 44 inches; ashy clay loam
Btqb—44 to 53 inches; gravelly ashy sandy clay loam
Bkqmb—53 to 64 inches; cemented material

Characteristics of Borobey

Setting
Landform: Depressions of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 4 inches; ashy very fine sandy loam
AB—4 to 12 inches; ashy loamy sand
Bq—12 to 50 inches; ashy loamy fine sand
C—50 to 68 inches; ashy loamy sand

Dissimilar Minor Components

Raztack soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Playas
Percentage of map unit: 5 percent
Landform: Playas

495—Old Camp very cobbly loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 5,200 feet

Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Old Camp and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Old Camp

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Residuum and colluvium derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 13 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 5 inches; very cobbly loam
Bt—5 to 11 inches; very cobbly sandy clay loam
Btk—11 to 15 inches; extremely cobbly sandy clay loam
R—15 to 25 inches; bedrock

Dissimilar Minor Components

Pait soils
Percentage of map unit: 5 percent
Landform: Strath terrace escarpments

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Hager soils, cobbly loam surface
Percentage of map unit: 5 percent
Landform: Lava plateaus

496—Old Camp very cobbly loam, 30 to 50 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,840 feet
Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Old Camp, south, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Old Camp, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Residuum and colluvium derived from volcanic rock such as basalt
Slope range: 30 to 50 percent
Depth to restrictive feature: 13 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: LOAMY SLOPES 6-10 PZ (R024XY030OR)

Typical profile
A—0 to 5 inches; very cobbly loam
Bt—5 to 11 inches; very cobbly sandy clay loam
Btk—11 to 15 inches; extremely cobbly sandy clay loam
R—15 to 25 inches; bedrock

Dissimilar Minor Components

Pait soils
Percentage of map unit: 5 percent
Landform: Dissected lake terraces, strath terrace escarpments

Rock outcrop
Percentage of map unit: 5 percent

Atlow soils
Percentage of map unit: 5 percent
Landform: Hillslopes

497—Old Camp-Felcher-Rock outcrop complex, 15 to 50 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 5,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Old Camp and similar soils: 50 percent
Felcher, north, and similar soils: 20 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Old Camp

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Residuum and colluvium derived from volcanic rock such as basalt
Slope range: 15 to 50 percent
Depth to restrictive feature: 13 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)

Typical profile
A—0 to 5 inches; very cobbly loam
Bt—5 to 11 inches; very cobbly sandy clay loam
Btk—11 to 15 inches; extremely cobbly sandy clay loam
R—15 to 25 inches; bedrock

Characteristics of Felcher, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID NORTH 8-10 PZ (R023XY602OR)

Typical profile
A—0 to 4 inches; very cobbly sandy loam
Bw—4 to 14 inches; very cobbly loam

Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 50 percent

Dissimilar Minor Components

Suckerflat soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Atlow soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Brabble soils
Percentage of map unit: 5 percent
Landform: Hillslopes

498—Osoll-Panlee-Rock outcrop complex, 20 to 50 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 5,460 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Osoll and similar soils: 45 percent
Panlee and similar soils: 25 percent
Rock outcrop: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Osoll

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, andesite, or rhyolite with an influence of loess
Slope range: 20 to 50 percent
Depth to restrictive features: 8 to 14 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 0.7 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)

Typical profile
A—0 to 4 inches; very cobbly fine sandy loam
Bw—4 to 8 inches; very cobbly coarse sandy loam
Bkq—8 to 12 inches; very cobbly coarse sandy loam
Bkqm—12 to 27 inches; cemented material
R—27 to 37 inches; bedrock

Characteristics of Panlee

Setting
Landform: Hillslopes, escarpments

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, andesite, or rhyolite with an influence of loess
Slope range: 20 to 50 percent
Depth to restrictive feature: 40 to 60 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 8 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 15
Available water capacity: Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)

Typical profile
A—0 to 8 inches; gravelly very fine sandy loam
Bk—8 to 22 inches; very cobbly fine sandy loam
Bknq—22 to 54 inches; very cobbly fine sandy loam
Bkqm—54 to 61 inches; cemented material

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 50 percent

Dissimilar Minor Components

McNye soils
Percentage of map unit: 5 percent
Landform: Bedrock-controlled lake terrace escarpments

Atlow soils
Percentage of map unit: 5 percent
Landform: Hillslopes

499—Overallflat ashy very fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,470 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Overallflat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Overallflat

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very high (about 12 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY PONDED CLAY 6-10 PZ (R024XY007OR)

Typical profile
AE1—0 to 4 inches; ashy very fine sandy loam
AE2—4 to 7 inches; ashy silt loam
Bt—7 to 14 inches; ashy silty clay loam
Bkq—14 to 26 inches; ashy sandy clay loam
Cq—26 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Borobey soils
Percentage of map unit: 8 percent
Landform: Lake terraces

Raztack soils
Percentage of map unit: 7 percent
Landform: Lakebeds

500—Overallflat ashy very fine sandy loam, pluvial lake, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,560 to 4,580 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Overallflat, pluvial lake, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Overallflat, Pluvial Lake

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very high (about 12 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: CLAYEY PLAYETTE (R024XY008OR)

Typical profile
AE1—0 to 4 inches; ashy very fine sandy loam
AE2—4 to 7 inches; ashy silt loam
Bt—7 to 14 inches; ashy silty clay loam
Bkq—14 to 26 inches; ashy sandy clay loam
Cq—26 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Swalesilver soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Milcan soils
Percentage of map unit: 5 percent
Landform: Lava plains

Borobey soils
Percentage of map unit: 5 percent
Landform: Lake terraces

501—Overallflat-Morehouse complex, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,440 to 4,580 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Overallflat and similar soils: 50 percent
Morehouse and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Overallflat

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very high (about 12 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: CLAYEY PLAYETTE (R024XY008OR)

Typical profile
AE1—0 to 4 inches; ashy very fine sandy loam
AE2—4 to 7 inches; ashy silt loam
Bt—7 to 14 inches; ashy silty clay loam
Bkq—14 to 26 inches; ashy sandy clay loam
Cq—26 to 60 inches; ashy loamy fine sand

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE DUNES 8-10 PZ (R023XY610OR)

Typical profile
A—0 to 5 inches; ashy sandy loam
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Swalesilver soils
Percentage of map unit: 10 percent
Landform: Lake terraces

Playas
Percentage of map unit: 5 percent
Landform: Playas

502—Overallflat-Silverash complex, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,420 to 4,670 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Overallflat and similar soils: 45 percent
Silverash and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Overallflat

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: High (about 11.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY PONDED CLAY 6-10 PZ (R024XY007OR)

Typical profile
AE1—0 to 4 inches; ashy fine sandy loam
AE2—4 to 7 inches; ashy silt loam
Bt—7 to 14 inches; ashy silty clay loam
Bkq—14 to 26 inches; ashy sandy clay loam
Cq—26 to 60 inches; ashy loamy fine sand

Characteristics of Silverash

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Volcanic ash mixed with lacustrine and alluvial deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 8 inches (see Water Features table)
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: High (about 10.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: PONDED CLAY (R023XY200OR)

Typical profile
A—0 to 2 inches; ashy loam
AE—2 to 8 inches; ashy loam
Bt—8 to 21 inches; clay
C—21 to 62 inches; sandy clay loam

Dissimilar Minor Components

Playas
Percentage of map unit: 10 percent
Landform: Playas

Morfitt soils
Percentage of map unit: 5 percent
Landform: Alluvial fans, basin floors

503—Overallflat, hummocky-Silverash complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,560 to 4,570 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Overallflat, hummocky, and similar soils: 50 percent
Silverash and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Overallflat, Hummocky

Setting
Landform: Low hummocks on lakebeds

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very high (about 12 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: CLAYEY PLAYETTE (R024XY008OR)

Typical profile
AE1—0 to 4 inches; ashy very fine sandy loam
AE2—4 to 7 inches; ashy silt loam
Bt—7 to 14 inches; ashy silty clay loam
Bkq—14 to 26 inches; ashy sandy clay loam
Cq—26 to 60 inches; ashy loamy fine sand

Characteristics of Silverash

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Volcanic ash mixed with lacustrine and alluvial deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 8 inches (see Water Features table)
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: PONDED CLAY (R023XY200OR)

Typical profile
A—0 to 2 inches; ashy silt loam
AE—2 to 8 inches; ashy loam
Bt—8 to 21 inches; clay
C—21 to 62 inches; sandy clay loam

Dissimilar Minor Components

Borobey soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Milcan soils
Percentage of map unit: 5 percent
Landform: Lava plains

504—Ozamis silty clay, saline, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,310 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Ozamis, saline, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ozamis, Saline

Setting
Landform: Alluvial flats

Properties and qualities
Parent material: Lacustrine and alluvial deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table (minimum depth): About 12 to 48 inches (see Water Features table)

Salinity (maximum): Moderately saline (about 12 millimhos per centimeter)
Available water capacity: High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 5w
Ecological site: SODIC MEADOW (R024XY002OR)

Typical profile
Ag—0 to 10 inches; silty clay
Cg—10 to 34 inches; silt loam
2C—34 to 36 inches; ashy coarse sand
3Cg—36 to 60 inches; very fine sandy loam

Dissimilar Minor Components

Reese soils
Percentage of map unit: 5 percent
Landform: Alluvial flats

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

505—Ozamis-Reese complex, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,310 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Ozamis and similar soils: 50 percent
Reese and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Ozamis

Setting
Landform: Alluvial flats

Properties and qualities
Parent material: Lacustrine and alluvial deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Rare (see Water Features table)
Ponding frequency: Frequent (see Water Features table)

Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Available water capacity: High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 5w
Ecological site: SODIC MEADOW (R024XY002OR)

Typical profile
Ag—0 to 10 inches; loam
Cg—10 to 34 inches; silt loam
2C—34 to 36 inches; ashy coarse sand
3Cg—36 to 60 inches; very fine sandy loam

Characteristics of Reese

Setting
Landform: Alluvial flats

Properties and qualities
Parent material: Lacustrine and alluvial deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table (minimum depth): About 12 to 36 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 24 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 350
Available water capacity: Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC MEADOW (R024XY002OR)

Typical profile
An1—0 to 4 inches; very fine sandy loam
2An2—4 to 10 inches; loam
2Bnq—10 to 33 inches; loam
3Bq1—33 to 44 inches; loam
4Bq2—44 to 60 inches; loam

Dissimilar Minor Components

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Kewake soils
Percentage of map unit: 5 percent
Landform: Dunes

506—Pait very cobbly loam, 5 to 30 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,820 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Pait and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pait

Setting
Landform: Dissected lake terraces, strath terrace escarpments

Properties and qualities
Parent material: Colluvium over alluvium derived from volcanic rock such as basalt or tuff
Slope range: 5 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 3 inches; very cobbly loam
A2—3 to 16 inches; very gravelly sandy loam
Bw—16 to 42 inches; extremely stony sandy loam
2C1—42 to 55 inches; extremely stony loamy sand
3C2—55 to 62 inches; very stony sandy loam

Dissimilar Minor Components

Deppy soils
Percentage of map unit: 5 percent
Landform: Lake terraces, fan remnants

Calderwood soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Tumtum soils
Percentage of map unit: 3 percent
Landform: Lake terraces, fan remnants

Old Camp soils
Percentage of map unit: 2 percent
Landform: Hillslopes

507—Paulina ashy silty clay loam, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,620 feet
Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Paulina and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Paulina

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Very poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 3 inches (see Water Features table)
Available water capacity: Very high (about 15.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: WET MEADOW 14-40 PZ (R021XY406OR)

Typical profile
A1—0 to 3 inches; ashy silty clay loam
A2—3 to 12 inches; ashy silty clay loam
C—12 to 60 inches; ashy loam

Dissimilar Minor Components

Chinarise soils
Percentage of map unit: 10 percent
Landform: Stream terraces, lake terraces

Rubble land
Percentage of map unit: 5 percent

508—Paulina ashy silty clay loam, very gravelly substratum, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,390 feet

Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Paulina, very gravelly substratum, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Paulina, Very Gravelly Substratum

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Very poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 3 inches (see Water Features table)
Available water capacity: Very high (about 16.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: WET MEADOW 14-40 PZ (R021XY406OR)

Typical profile
A1—0 to 3 inches; ashy silty clay loam
A2—3 to 53 inches; ashy silty clay loam
C—53 to 60 inches; very gravelly ashy very fine sandy loam

Dissimilar Minor Components

Chinarise soils
Percentage of map unit: 10 percent
Landform: Stream terraces, lake terraces

Rubble land
Percentage of map unit: 5 percent

509—Paulina-Chinarise complex, 0 to 4 percent slopes

Map Unit Setting

General landscape: Basins, valleys
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,340 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Paulina and similar soils: 50 percent
Chinarise and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Paulina

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Very poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 3 inches (see Water Features table)
Available water capacity: Very high (about 15.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: WET MEADOW 14-40 PZ (R021XY406OR)

Typical profile
Oe—0 to 1 inch; moderately decomposed plant material
A1—1 to 3 inches; ashy mucky silt loam
A2—3 to 12 inches; ashy silty clay loam
C—12 to 60 inches; ashy loam

Characteristics of Chinarise

Setting
Landform: Stream terraces, lake terraces

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock and volcanic ash
Slope range: 1 to 4 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): About 24 to 40 inches (see Water Features table)
Salinity (maximum): Moderately saline (about 12 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very high (about 12.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: BASIN HUMMOCK (R021XY316OR)

Typical profile
An—0 to 5 inches; ashy silt loam
Bn—5 to 18 inches; ashy silt loam
Bw—18 to 50 inches; ashy fine sandy loam
C—50 to 60 inches; ashy fine sandy loam

Dissimilar Minor Components

Tuffcabin soils
Percentage of map unit: 4 percent
Landform: Beach ridges

Hayespring soils
Percentage of map unit: 4 percent
Landform: Lava plateaus

Morehouse soils
Percentage of map unit: 2 percent
Landform: Dunes on lakebeds

511—Pernty gravelly silt loam, 3 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,600 to 5,600 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Pernty and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pernty

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, basalt, or rhyolite
Slope range: 3 to 15 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A—0 to 3 inches; gravelly silt loam
Bt1—3 to 12 inches; very cobbly clay loam
R—12 to 22 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

512—Pernty-Chesebro-Rock outcrop complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 5,250 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Pernty and similar soils: 45 percent
Chesebro and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Pernty

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyodacite, rhyolite, basalt, or welded tuff
Slope range: 15 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SOUTH SLOPES 12-16 PZ (R023XY302OR)

Typical profile
A1—0 to 2 inches; extremely stony ashy fine sandy loam
A2—2 to 6 inches; very stony ashy sandy loam
Bt—6 to 18 inches; very cobbly ashy sandy clay loam
R—18 to 28 inches; bedrock

Characteristics of Chesebro

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ashflow and colluvium derived from volcanic rock such as rhyodacite or rhyolite

Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 8.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)

Typical profile
A1—0 to 4 inches; very cobbly ashy loam
A2—4 to 24 inches; very stony ashy loam
Bt—24 to 60 inches; very gravelly ashy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 30 percent

Dissimilar Minor Components

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

Greenmountain soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

513—Pernty-Cleavage complex, 5 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,680 to 5,100 feet
Mean annual precipitation: 11 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Pernty and similar soils: 55 percent
Cleavage and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Pernty

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, basalt, or rhyolite

Slope range: 5 to 15 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A—0 to 3 inches; very stony sandy loam
Bt1—3 to 12 inches; very cobbly clay loam
R—12 to 22 inches; bedrock

Characteristics of Cleavage

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Residuum derived from volcanic rock such as welded ashflow tuff
Slope range: 5 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A—0 to 7 inches; very cobbly loam
Bt—7 to 11 inches; very cobbly clay loam
R—11 to 21 inches; bedrock

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Reluctan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Teguro soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

514—Pernty-Glencabin-Rock outcrop complex, 15 to 45 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,070 to 6,000 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Pernty, south, and similar soils: 35 percent
Glencabin and similar soils: 30 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Pernty, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, basalt, or rhyolite
Slope range: 15 to 45 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)

Typical profile
A—0 to 3 inches; extremely stony loam
Bt1—3 to 12 inches; very cobbly clay loam
R—12 to 22 inches; bedrock

Characteristics of Glencabin

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as welded tuff
Slope range: 15 to 40 percent
Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 4 inches; gravelly ashy sandy loam
A2—4 to 21 inches; ashy sandy loam
C—21 to 54 inches; ashy sandy loam
R—54 to 64 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 45 percent

Dissimilar Minor Components

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

Ninemile soils
Percentage of map unit: 5 percent
Landform: Hillslopes, ridges

Teguro soils
Percentage of map unit: 5 percent
Landform: Hillslopes

516—Pernty-Westbutte-Ninemile association, 5 to 50 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,860 to 5,830 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Pernty, south, and similar soils: 40 percent
Westbutte, north, and similar soils: 25 percent
Ninemile and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Pernty, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, basalt, or rhyolite
Slope range: 15 to 50 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SOUTH SLOPES 12-16 PZ (R023XY302OR)

Typical profile
A—0 to 3 inches; gravelly silt loam
Bt1—3 to 12 inches; very cobbly clay loam
R—12 to 22 inches; bedrock

Characteristics of Westbutte, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 3 inches; extremely stony loam
A2—3 to 11 inches; very cobbly loam
Bw—11 to 21 inches; extremely cobbly clay loam
R—21 to 31 inches; bedrock

Characteristics of Ninemile

Setting
Landform: Hillslopes, ridges

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 5 to 30 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A—0 to 2 inches; very cobbly clay loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Felcher soils
Percentage of map unit: 5 percent
Landform: Hillslopes

517—Picturerock ashy loam, 1 to 3 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Picturerock and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Picturerock

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from pumiceous volcanic ash
Slope range: 1 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 8 inches (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Available water capacity: Very high (about 14.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: BASIN DRY MEADOW (R023XY118OR)

Typical profile
Ak—0 to 3 inches; ashy loam
Bk—3 to 33 inches; ashy sandy loam
2Ck—33 to 60 inches; very paragravelly ashy loam

Dissimilar Minor Components

Abert soils
Percentage of map unit: 5 percent
Landform: Lakebeds

Bridgewell soils
Percentage of map unit: 5 percent
Landform: Lakebeds

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

518—Pitcheranch silt loam, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,240 to 4,280 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Pitcheranch and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pitcheranch

Setting
Landform: Flood plains

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Very poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Rare (see Water Features table)
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: High (about 9.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: WET MARSH (R023XY115OR)

Typical profile
Ak—0 to 20 inches; silt loam
C—20 to 60 inches; sandy loam

Dissimilar Minor Components

Ozamis soils
Percentage of map unit: 5 percent
Landform: Alluvial flats

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

Paulina soils
Percentage of map unit: 5 percent
Landform: Flood plains

519—Pitcheranch-Chinarise complex, 0 to 4 percent slopes

Map Unit Setting

General landscape: Basins, valleys
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Pitcheranch and similar soils: 65 percent
Chinarise and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Pitcheranch

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock, volcanic ash, and pumice
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 20 inches (see Water Features table)
Available water capacity: Moderate (about 8.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: WET MEADOW 14-40 PZ (R021XY406OR)

Typical profile
A—0 to 2 inches; ashy mucky silt loam
Bw—2 to 30 inches; ashy loam
C—30 to 60 inches; ashy loamy sand

Characteristics of Chinarise

Setting
Landform: Stream terraces, lake terraces

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock and volcanic ash
Slope range: 1 to 4 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): About 24 to 40 inches (see Water Features table)
Salinity (maximum): Moderately saline (about 12 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very high (about 12.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: BASIN HUMMOCK (R021XY316OR)

Typical profile
An—0 to 5 inches; ashy silt loam
Bn—5 to 18 inches; ashy silt loam
Bw—18 to 50 inches; ashy fine sandy loam
C—50 to 60 inches; ashy fine sandy loam

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 4 percent
Landform: Dunes on lakebeds

Fort Rock soils
Percentage of map unit: 4 percent
Landform: Lake terraces

Bonnick soils
Percentage of map unit: 4 percent
Landform: Lake terraces

Thornlake soils
Percentage of map unit: 3 percent
Landform: Lakebeds

520—Playas

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 5,990 feet
Mean annual precipitation: 8 to 20 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Playas: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Playas

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Swalesilver soils
Percentage of map unit: 4 percent
Landform: Closed depressions of lava plateaus

Morfitt soils
Percentage of map unit: 1 percent
Landform: Alluvial fans

521—Playas, saline

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,160 to 5,090 feet
Mean annual precipitation: 8 to 15 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Playas, saline: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Playas, Saline

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Strongly saline (about 20 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 50
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Helphenstein soils, frequently ponded
Percentage of map unit: 3 percent
Landform: Lakebeds

Flagstaff soils
Percentage of map unit: 3 percent
Landform: Lakebeds

Turpin soils
Percentage of map unit: 2 percent
Landform: Lake terraces

Rabbithills soils
Percentage of map unit: 2 percent
Landform: Lake terraces, fan remnants

522—Playas-Helphenstein complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,260 to 4,500 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Playas: 55 percent
Helphenstein and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Playas

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Characteristics of Helphenstein

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Occasional (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Strongly saline (about 35 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 100
Available water capacity: Low (about 3.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC FLAT (R024XY001OR)

Typical profile
An—0 to 2 inches; fine sandy loam
Bn1—2 to 8 inches; silt loam
Bn2—8 to 34 inches; silty clay loam
2C—34 to 60 inches; loam

Dissimilar Minor Components

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Hinton soils
Percentage of map unit: 5 percent
Landform: Lake terraces

523—Poorjug complex, 0 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,590 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Poorjug and similar soils: 65 percent
Poorjug, overblown, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Poorjug

Setting
Landform: Pediments, lava plateaus

Properties and qualities
Parent material: Slope alluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 0 to 10 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 2 inches; gravelly loamy fine sand
A2—2 to 5 inches; gravelly loam
B—5 to 15 inches; very cobbly loam
R—15 to 25 inches; bedrock

Characteristics of Poorjug, Overblown

Setting
Landform: Pediments

Properties and qualities
Parent material: Slope alluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 0 to 10 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY LOAM 8-10 PZ (R024XY018OR)

Typical profile
A—0 to 13 inches; gravelly loamy fine sand
Bw—13 to 19 inches; gravelly loam
R—19 to 29 inches; bedrock

Dissimilar Minor Components

McConnel soils
Percentage of map unit: 10 percent
Landform: Beach terraces, lake terraces

Calderwood soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

524—Poorjug-Rock outcrop complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,380 to 4,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Poorjug and similar soils: 60 percent
Rock outcrop: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Poorjug

Setting
Landform: Pediments, lava plateaus

Properties and qualities
Parent material: Slope alluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 2 inches; very gravelly sandy loam
A2—2 to 5 inches; gravelly loam
B—5 to 15 inches; very cobbly loam
R—15 to 25 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 2 to 15 percent

Dissimilar Minor Components

Suckerflat soils
Percentage of map unit: 8 percent
Landform: Lava plateaus

Moonbeam soils
Percentage of map unit: 7 percent
Landform: Lava plateaus

525—Porterfield-Rock outcrop complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Hills, lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,460 to 4,890 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Porterfield and similar soils: 60 percent
Rock outcrop: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Porterfield

Setting
Landform: Hillslopes, side slopes of lava plateaus

Properties and qualities
Parent material: Colluvium derived from diatomaceous earth and lacustrine tuff
Slope range: 2 to 20 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 2 inches; very gravelly ashy fine sandy loam
Bk—2 to 9 inches; gravelly ashy loam
Ck—9 to 12 inches; gravelly ashy coarse sandy loam
Cr—12 to 22 inches; diatomaceous material

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 2 to 20 percent

Dissimilar Minor Components

Anawalt soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Embal soils
Percentage of map unit: 3 percent
Landform: Ephemeral stream terraces

Dunres soils
Percentage of map unit: 2 percent
Landform: Hillslopes, lava plateaus

526—Puzzlebark-Morehouse-Morehouse, gently sloping complex, 2 to 25 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,500 to 4,750 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Puzzlebark and similar soils: 35 percent
Morehouse, moderately steep, and similar soils: 30 percent
Morehouse, gently sloping, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Puzzlebark

Setting
Landform: Structural benches

Properties and qualities
Parent material: Volcanic ash and slope alluvium derived from volcanic rock such as basaltic tuff or tuff breccia
Slope range: 2 to 5 percent
Depth to restrictive features: 11 to 16 inches to a very strongly cemented duripan, 16 to 24 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER-PINE-FESCUE (R006XB002OR)

Typical profile
A—0 to 2 inches; ashy loamy sand
Bw—2 to 8 inches; ashy sandy loam
Bkq—8 to 14 inches; gravelly ashy sandy clay loam
Bkqm—14 to 21 inches; cemented material
R—21 to 31 inches; bedrock

Characteristics of Morehouse, Moderately Steep

Setting
Landform: Dunes on lava plateaus

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock
Slope range: 5 to 25 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: FORESTED SHRUBBY DUNES 8-11 PZ (R006XA216OR)

Typical profile
A—0 to 5 inches; ashy sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 60 inches; ashy loamy sand

Characteristics of Morehouse, Gently Sloping

Setting
Landform: Dunes on lava plateaus

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock
Slope range: 2 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: FORESTED SANDY LOAM 8-11 PZ (R006XA212OR)

Typical profile
A—0 to 5 inches; ashy sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 60 inches; ashy loamy sand

Dissimilar Minor Components

Lostforest soils
Percentage of map unit: 10 percent
Landform: Structural benches

Sandrock soils
Percentage of map unit: 5 percent
Landform: Structural benches

527—Puzzlebark-Sandrock complex, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,450 to 4,560 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Puzzlebark and similar soils: 55 percent
Sandrock and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Puzzlebark

Setting
Landform: Structural benches

Properties and qualities
Parent material: Volcanic ash and slope alluvium derived from volcanic rock such as basaltic tuff or tuff breccia

Slope range: 0 to 5 percent
Depth to restrictive features: 11 to 16 inches to a very strongly cemented duripan, 16 to 24 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER-PINE-FESCUE (R006XB002OR)

Typical profile
A—0 to 2 inches; gravelly ashy fine sandy loam
Bw—2 to 8 inches; ashy sandy loam
Bkq—8 to 14 inches; gravelly ashy sandy clay loam
Bkqm—14 to 21 inches; cemented material
R—21 to 31 inches; bedrock

Characteristics of Sandrock

Setting
Landform: Structural benches

Properties and qualities
Parent material: Volcanic ash and slope alluvium derived from volcanic rock such as basaltic tuff or tuff breccia
Slope range: 2 to 5 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: VERY SHALLOW PUMICE TERRACE 8-11 PZ (R006XA217OR)

Typical profile
A—0 to 3 inches; ashy loamy fine sand
BA—3 to 8 inches; channery ashy fine sandy loam
Bt—8 to 12 inches; channery ashy sandy clay loam
R—12 to 22 inches; bedrock

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lakebeds

Rock outcrop
Percentage of map unit: 5 percent

528—Rabbithills complex, 0 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,520 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Rabbithills, overblown, and similar soils: 55 percent
Rabbithills and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Rabbithills, Overblown

Setting
Landform: Lake terraces, fan remnants

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 10 percent
Depth to restrictive features: 12 to 16 inches to a strongly cemented duripan, 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY LOAM 8-10 PZ (R024XY018OR)

Typical profile
A1—0 to 10 inches; gravelly loamy fine sand
A2—10 to 12 inches; loamy sand
Bkqm—12 to 22 inches; cemented fine sandy loam
2BCk—22 to 40 inches; loam
2Cr—40 to 60 inches; bedrock

Characteristics of Rabbithills

Setting
Landform: Lake terraces, fan remnants

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 10 percent
Depth to restrictive features: 12 to 16 inches to a strongly cemented duripan, 40 to 60 inches to paralithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 3 inches; gravelly fine sandy loam
A2—3 to 12 inches; sandy loam
Bkqm—12 to 22 inches; cemented fine sandy loam
2BCk—22 to 40 inches; loam
2Cr—40 to 60 inches; bedrock

Dissimilar Minor Components

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lakebeds

Calderwood soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

529—Rabbithills complex, basin, 0 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,330 to 4,870 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Rabbithills and similar soils: 65 percent
Rabbithills, overblown, and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Rabbithills

Setting
Landform: Lake terraces, fan remnants

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 10 percent
Depth to restrictive features: 12 to 16 inches to a strongly cemented duripan, 40 to 60 inches to paralithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 3 inches; gravelly sand
A2—3 to 12 inches; sandy loam
Bkqm—12 to 22 inches; cemented fine sandy loam
2BCk—22 to 40 inches; loam
2Cr—40 to 60 inches; bedrock

Characteristics of Rabbithills, Overblown

Setting
Landform: Lake terraces, fan remnants

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 10 percent
Depth to restrictive features: 12 to 16 inches to a strongly cemented duripan, 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY LOAM 8-10 PZ (R024XY018OR)

Typical profile
A1—0 to 10 inches; sand
A2—10 to 12 inches; loamy sand
Bkqm—12 to 22 inches; cemented fine sandy loam
2BCk—22 to 40 inches; loam
2Cr—40 to 60 inches; bedrock

Dissimilar Minor Components

Clurde soils
Percentage of map unit: 5 percent
Landform: Alluvial fans, dissected terraces

Turpin soils
Percentage of map unit: 3 percent
Landform: Lake terraces

Playas
Percentage of map unit: 2 percent
Landform: Playas

530—Rabbithills gravelly loamy sand, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,860 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Rabbithills and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Rabbithills

Setting
Landform: Lake terraces, fan remnants

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive features: 12 to 16 inches to a strongly cemented duripan, 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 3 inches; gravelly loamy sand
A2—3 to 12 inches; sandy loam
Bkqm—12 to 22 inches; cemented fine sandy loam
2BCk—22 to 40 inches; loam
2Cr—40 to 60 inches; bedrock

Dissimilar Minor Components

McConnel soils
Percentage of map unit: 5 percent
Landform: Beach terraces, lake terraces

Enko soils
Percentage of map unit: 3 percent
Landform: Swales, fan piedmonts

Poorjug soils
Percentage of map unit: 2 percent
Landform: Pediments

531—Rabbithills gravelly sandy loam, sodic, 0 to 6 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,950 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Rabbithills, sodic, and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Rabbithills, Sodic

Setting
Landform: Lake terraces, fan remnants

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 6 percent
Depth to restrictive features: 12 to 16 inches to a strongly cemented duripan, 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC TERRACE 6-10 PZ (R024XY014OR)

Typical profile
A1—0 to 3 inches; gravelly sandy loam
A2—3 to 12 inches; sandy loam
Bkqm—12 to 22 inches; cemented fine sandy loam
2BCk—22 to 40 inches; loam
2Cr—40 to 60 inches; bedrock

Dissimilar Minor Components

Enko soils
Percentage of map unit: 4 percent
Landform: Swales, fan piedmonts

Turpin soils
Percentage of map unit: 3 percent
Landform: Lake terraces

Catlow soils
Percentage of map unit: 3 percent
Landform: Old beach terraces, old lake terraces

532—Rabbithills gravelly loam, 2 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 4,860 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Rabbithills and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Rabbithills

Setting
Landform: Fan terraces

Properties and qualities
Parent material: Alluvium and eolian deposits derived from mixed volcanic rock
Slope range: 2 to 20 percent
Depth to restrictive features: 10 to 20 inches to a strongly cemented duripan, 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 13 inches; gravelly loam
Bqm—13 to 22 inches; cemented fine sandy loam
Ck—22 to 45 inches; very gravelly sandy loam
2Cr—45 to 60 inches; bedrock

Dissimilar Minor Components

Clurde soils
Percentage of map unit: 5 percent
Landform: Alluvial fans, dissected terraces

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

Swalesilver soils
Percentage of map unit: 5 percent
Landform: Lake terraces

533—Rabbithills very gravelly loamy sand, 2 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,650 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Rabbithills and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Rabbithills

Setting
Landform: Lake terraces, fan remnants

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive features: 12 to 16 inches to a strongly cemented duripan, 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 3 inches; very gravelly loamy sand
A2—3 to 12 inches; sandy loam
Bkqm—12 to 22 inches; cemented fine sandy loam
2BCk—22 to 40 inches; loam
2Cr—40 to 60 inches; bedrock

Dissimilar Minor Components

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

Davey soils
Percentage of map unit: 5 percent
Landform: Fan skirts, alluvial fans

Catlow soils
Percentage of map unit: 5 percent
Landform: Old beach terraces, old lake terraces

534—Rabbithills-Helphenstein complex, 0 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,540 to 4,600 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Rabbithills and similar soils: 70 percent
Helphenstein, frequently ponded, and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Rabbithills

Setting
Landform: Lake terraces, fan remnants

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 10 percent
Depth to restrictive features: 12 to 16 inches to a strongly cemented duripan, 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 3 inches; gravelly sandy loam
A2—3 to 12 inches; sandy loam
Bkqm—12 to 22 inches; cemented fine sandy loam
2BCk—22 to 40 inches; loam
2Cr—40 to 60 inches; bedrock

Characteristics of Helphenstein, Frequently Ponded

Setting
Landform: Lakebeds, low terraces

Properties and qualities
Parent material: Volcanic ash and alluvium over lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 1
Available water capacity: Very high (about 14.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: DRY PONDED BASIN 6-10 PZ (R024XY629OR)

Typical profile
A—0 to 4 inches; ashy silty clay loam
Bk1—4 to 9 inches; ashy silty clay loam
Bk2—9 to 18 inches; ashy sandy loam
C—18 to 60 inches; ashy loam

Dissimilar Minor Components

Cleet soils
Percentage of map unit: 5 percent
Landform: Fan remnants

Tumtum soils
Percentage of map unit: 5 percent
Landform: Lake terraces, fan remnants

Playas
Percentage of map unit: 5 percent
Landform: Playas

535—Ratto very cobbly loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus, basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,050 to 5,750 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ratto and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ratto

Setting
Landform: Fan remnants, lava plateaus

Properties and qualities
Parent material: Alluvium and colluvium derived from volcanic rock such as basalt or tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 12 to 20 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYEY 10-12 PZ (R023XY220OR)

Typical profile
A—0 to 3 inches; very cobbly loam
AB—3 to 9 inches; gravelly clay loam
Bt—9 to 15 inches; clay loam
Bkqm—15 to 19 inches; cemented material
2Bk—19 to 60 inches; gravelly loamy sand

Dissimilar Minor Components

Brace soils
Percentage of map unit: 8 percent
Landform: Lava plateaus

Raz soils
Percentage of map unit: 7 percent
Landform: Lava plateaus

536—Raz cobbly fine sandy loam, overblown, 1 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,340 to 5,010 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Raz, overblown, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Raz, Overblown

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Slope alluvium, colluvium, and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 1 to 10 percent
Depth to restrictive features: 10 to 18 inches to a strongly cemented duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY LOAM 10-12 PZ (R023XY213OR)

Typical profile
A—0 to 4 inches; cobbly fine sandy loam
Bw—4 to 12 inches; sandy clay loam
Bq—12 to 17 inches; sandy loam
Bkqm—17 to 30 inches; cemented material
2R—30 to 40 inches; bedrock

Dissimilar Minor Components

Coztur soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lava plateaus

Brace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

537—Raz-Brace complex, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,390 to 5,240 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Raz and similar soils: 55 percent
Brace and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Raz

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Slope alluvium, colluvium, and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 10 percent

Depth to restrictive features: 10 to 18 inches to a strongly cemented duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID PLAINS 8-11 PZ (R023XY604OR)

Typical profile
A—0 to 4 inches; cobbly sandy loam
Bw—4 to 12 inches; sandy clay loam
Bq—12 to 17 inches; sandy loam
Bkqm—17 to 30 inches; cemented material
2R—30 to 40 inches; bedrock

Characteristics of Brace

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 10 percent
Depth to restrictive features: 20 to 37 inches to an indurated duripan, 22 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID PLAINS 8-11 PZ (R023XY604OR)

Typical profile
A—0 to 10 inches; cobbly loam
Bt—10 to 14 inches; cobbly loam
Btkq—14 to 22 inches; cobbly clay loam
Bkqm—22 to 26 inches; cemented material
R—26 to 36 inches; bedrock

Dissimilar Minor Components

Reallis soils
Percentage of map unit: 5 percent
Landform: Alluvial fans, lake terraces

Rock outcrop
Percentage of map unit: 5 percent

538—Raz-Brace complex, high precipitation, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,370 to 5,870 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Raz, high precipitation, and similar soils: 50 percent
Brace, high precipitation, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Raz, High Precipitation

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Slope alluvium, colluvium, and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Depth to restrictive features: 10 to 18 inches to a strongly cemented duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 4 inches; very cobbly loam
Bw—4 to 12 inches; sandy clay loam
Bq—12 to 17 inches; sandy loam
Bkqm—17 to 30 inches; cemented material
2R—30 to 40 inches; bedrock

Characteristics of Brace, High Precipitation

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Depth to restrictive features: 20 to 37 inches to an indurated duripan, 22 to 40 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 10 inches; stony loam
Bt—10 to 14 inches; cobbly loam
Btkq—14 to 22 inches; cobbly clay loam
Bkqm—22 to 26 inches; cemented material
R—26 to 36 inches; bedrock

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Oreneva soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Reallis soils
Percentage of map unit: 5 percent
Landform: Alluvial fans, lake terraces

539—Raz-Brace complex, low precipitation, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 5,200 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Raz, low precipitation, and similar soils: 50 percent
Brace, low precipitation, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Raz, Low Precipitation

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Slope alluvium, colluvium, and residuum derived from volcanic rock such as basalt or welded tuff

Slope range: 2 to 20 percent
Depth to restrictive features: 10 to 18 inches to a strongly cemented duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 4 inches; very cobbly loam
Bw—4 to 12 inches; sandy clay loam
Bq—12 to 17 inches; sandy loam
Bkqm—17 to 30 inches; cemented material
2R—30 to 40 inches; bedrock

Characteristics of Brace, Low Precipitation

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Depth to restrictive features: 20 to 37 inches to an indurated duripan, 22 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 10 inches; stony loam
Bt—10 to 14 inches; cobbly loam
Btkq—14 to 22 inches; cobbly clay loam
Bkqm—22 to 26 inches; cemented material
R—26 to 36 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 5 percent

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Foleylake soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

540—Raz-Brace complex, overblown, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,380 to 5,120 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Raz, overblown, and similar soils: 50 percent
Brace, overblown, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Raz, Overblown

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Slope alluvium, colluvium, and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Depth to restrictive features: 10 to 18 inches to a strongly cemented duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY LOAM 10-12 PZ (R023XY213OR)

Typical profile
A—0 to 10 inches; gravelly loamy sand
Bw—10 to 12 inches; sandy clay loam
Bq—12 to 17 inches; sandy loam
Bkqm—17 to 30 inches; cemented material
2R—30 to 40 inches; bedrock

Characteristics of Brace, Overblown

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff

Slope range: 2 to 20 percent
Depth to restrictive features: 20 to 37 inches to an indurated duripan, 22 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY LOAM 10-12 PZ (R023XY213OR)

Typical profile
A—0 to 10 inches; gravelly loamy sand
Bt—10 to 14 inches; cobbly loam
Btkq—14 to 22 inches; cobbly clay loam
Bkqm—22 to 26 inches; cemented material
R—26 to 36 inches; bedrock

Dissimilar Minor Components

Snakepit soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

Reallis soils
Percentage of map unit: 5 percent
Landform: Alluvial fans, lake terraces

Rubble land
Percentage of map unit: 5 percent

541—Raz-Poorjug complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 5,340 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Raz and similar soils: 60 percent
Poorjug and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Raz

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Slope alluvium, colluvium, and residuum derived from volcanic rock such as basalt or welded tuff

Slope range: 2 to 15 percent
Depth to restrictive features: 10 to 18 inches to a strongly cemented duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 4 inches; cobbly loam
Bw—4 to 12 inches; sandy clay loam
Bq—12 to 17 inches; sandy loam
Bkqm—17 to 30 inches; cemented material
2R—30 to 40 inches; bedrock

Characteristics of Poorjug

Setting
Landform: Pediments, lava plateaus

Properties and qualities
Parent material: Slope alluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID FAN 8-10 PZ (R024XY653OR)

Typical profile
A1—0 to 2 inches; gravelly fine sandy loam
A2—2 to 5 inches; gravelly loam
B—5 to 19 inches; very cobbly loam
R—19 to 29 inches; bedrock

Dissimilar Minor Components

Brabble soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

542—Raz-Reallis association, 1 to 4 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,600 to 4,800 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Raz and similar soils: 70 percent
Reallis and similar soils: 20 percent
Dissimilar minor component: 10 percent

Characteristics of Raz

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Slope alluvium, colluvium, and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 1 to 2 percent
Depth to restrictive features: 10 to 18 inches to a strongly cemented duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 4 inches; gravelly sandy loam
Bw—4 to 12 inches; sandy clay loam
Bq—12 to 17 inches; sandy loam
Bkqm—17 to 30 inches; cemented material
2R—30 to 40 inches; bedrock

Characteristics of Reallis

Setting
Landform: Alluvial fans, lake terraces

Properties and qualities
Parent material: Alluvium derived from volcanic rock with an influence of eolian material
Slope range: 2 to 4 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Moderate (about 7.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY LOAM 10-12 PZ (R023XY213OR)

Typical profile
A—0 to 4 inches; gravelly loamy sand
Bw—4 to 10 inches; sandy loam
Bq—10 to 16 inches; sandy loam
Bkq1—16 to 29 inches; fine sandy loam
Bkq2—29 to 44 inches; loamy fine sand
Bk—44 to 60 inches; loam

Dissimilar Minor Component

Brace soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

543—Raztack-Silverash-Embal complex, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,550 to 4,750 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Raztack and similar soils: 35 percent
Silverash and similar soils: 25 percent
Embal and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Raztack

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: 40 to 60 inches to a weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 6 inches (see Water Features table)
Available water capacity: High (about 10.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SHALLOW SWALE 10-14 PZ (R023XY324OR)

Typical profile
A—0 to 4 inches; ashy loam
Bt1—4 to 14 inches; ashy clay loam
Bt2—14 to 33 inches; clay
Bt3—33 to 44 inches; clay loam
2Bqm—44 to 50 inches; cemented loamy sand
2C—50 to 70 inches; stratified loamy sand to clay loam

Characteristics of Silverash

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Volcanic ash mixed with lacustrine and alluvial deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 8 inches (see Water Features table)
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: PONDED CLAY (R023XY200OR)

Typical profile
A—0 to 2 inches; ashy fine sandy loam
AE—2 to 8 inches; ashy loam
Bt—8 to 21 inches; clay
C—21 to 62 inches; sandy clay loam

Characteristics of Embal

Setting
Landform: Ephemeral stream terraces

Properties and qualities
Parent material: Alluvium derived from volcanic ash and mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: 40 to 60 inches to a weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: SWALE 10-14 PZ (R023XY202OR)

Typical profile
A1—0 to 2 inches; ashy very fine sandy loam
A2—2 to 6 inches; ashy fine sandy loam
Bw—6 to 25 inches; ashy fine sandy loam
Bkq1—25 to 34 inches; cobbly ashy coarse sandy loam
2Bkq2—34 to 42 inches; gravelly ashy sandy loam
2Bkqm—42 to 60 inches; cemented gravelly ashy sandy loam

Dissimilar Minor Components

Oatmanflat soils
Percentage of map unit: 10 percent
Landform: Stream terraces

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

544—Reallis fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,700 to 4,750 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Reallis and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Reallis

Setting
Landform: Alluvial fans, lake terraces

Properties and qualities
Parent material: Alluvium derived from volcanic rock with an influence of eolian material
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Moderate (about 7.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 4 inches; fine sandy loam
Bw—4 to 10 inches; sandy loam
Bq—10 to 16 inches; sandy loam
Bkq1—16 to 29 inches; fine sandy loam
Bkq2—29 to 44 inches; loamy fine sand
Bk—44 to 60 inches; loam

Dissimilar Minor Components

Raz soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Brace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

545—Reallis loamy sand, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 5,260 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Reallis and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Reallis

Setting
Landform: Alluvial fans, lake terraces

Properties and qualities
Parent material: Alluvium derived from volcanic rock with an influence of eolian material
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Moderate (about 7.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SANDY LOAM 10-12 PZ (R023XY213OR)

Typical profile
A—0 to 4 inches; loamy sand
Bw—4 to 10 inches; sandy loam

Bq—10 to 16 inches; sandy loam
Bkq1—16 to 29 inches; fine sandy loam
Bkq2—29 to 44 inches; loamy fine sand
Bk—44 to 60 inches; loam

Dissimilar Minor Components

Borobey soils
Percentage of map unit: 8 percent
Landform: Lake terraces

Brace soils
Percentage of map unit: 7 percent
Landform: Lava plateaus

546—Reallis complex, 0 to 4 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,720 to 5,100 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Reallis, sandy loam surface, and similar soils: 50 percent
Reallis, fine sandy loam surface, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Reallis, Sandy Loam Surface

Setting
Landform: Alluvial fans, lake terraces

Properties and qualities
Parent material: Alluvium derived from volcanic rock with an influence of eolian material
Slope range: 0 to 4 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Moderate (about 7.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SANDY LOAM 10-12 PZ (R023XY213OR)

Typical profile
A—0 to 4 inches; sandy loam
Bw—4 to 10 inches; sandy loam
Bq—10 to 16 inches; sandy loam
Bkq1—16 to 29 inches; fine sandy loam

Bkq2—29 to 44 inches; loamy fine sand
Bk—44 to 60 inches; loam

Characteristics of Reallis, Fine Sandy Loam Surface

Setting
Landform: Alluvial fans, lake terraces

Properties and qualities
Parent material: Alluvium derived from volcanic rock with an influence of eolian material
Slope range: 0 to 4 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Moderate (about 7.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 4 inches; fine sandy loam
Bw—4 to 10 inches; sandy loam
Bq—10 to 16 inches; sandy loam
Bkq1—16 to 29 inches; fine sandy loam
Bkq2—29 to 44 inches; loamy fine sand
Bk—44 to 60 inches; loam

Dissimilar Minor Components

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

Snakepit soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

Spiderhole soils, very cobbly loamy sand surface
Percentage of map unit: 5 percent
Landform: Lava plateaus

547—Reallis-Yankeewell complex, 2 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,860 to 5,650 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Reallis and similar soils: 50 percent
Yankeewell and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Reallis

Setting
Landform: Alluvial fans

Properties and qualities
Parent material: Alluvium derived from volcanic rock with an influence of eolian material
Slope range: 2 to 6 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Moderate (about 7.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 4 inches; fine sandy loam
Bw—4 to 10 inches; sandy loam
Bq—10 to 16 inches; sandy loam
Bkq1—16 to 29 inches; fine sandy loam
Bkq2—29 to 44 inches; loamy fine sand
Bk—44 to 60 inches; loam

Characteristics of Yankeewell

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed eolian deposits over residuum derived from volcanic rock such as basalt
Slope range: 2 to 8 percent
Depth to restrictive features: 10 to 20 inches to a strongly cemented duripan, 18 to 26 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 20
Available water capacity: Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: HIGH SODIC HILLS 8-11 PZ (R024XY648OR)

Typical profile
A—0 to 3 inches; very cobbly sandy loam
E—3 to 6 inches; gravelly loam
2Btkn—6 to 11 inches; clay loam
2Bkqm—11 to 25 inches; cemented material
2R—25 to 35 inches; bedrock

Dissimilar Minor Components

Diablopeak soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Rubble land
Percentage of map unit: 5 percent

548—Redcanyon-Rock outcrop complex, 30 to 50 percent north slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,530 to 4,730 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Redcanyon, north, and similar soils: 50 percent
Rock outcrop: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Redcanyon, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 30 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: NORTH SLOPE 10-14 PZ (R021XY302OR)

Typical profile
A—0 to 8 inches; extremely bouldery loam
AB—8 to 18 inches; very bouldery loam

Bw—18 to 29 inches; extremely bouldery loam
Bk—29 to 31 inches; extremely bouldery loam
2R—31 to 41 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 30 to 50 percent

Dissimilar Minor Components

Royst soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Nuss soils
Percentage of map unit: 5 percent
Landform: Hillslopes, escarpments

549—Redcanyon-Rock outcrop complex, 30 to 50 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 4,760 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Redcanyon, south, and similar soils: 50 percent
Rock outcrop: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Redcanyon, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 30 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: JUNIPER SOUTH 12-16 PZ (R021XY301OR)

Typical profile
A—0 to 8 inches; extremely bouldery loam
AB—8 to 18 inches; very bouldery loam
Bw—18 to 29 inches; extremely bouldery loam
Bk—29 to 31 inches; extremely bouldery loam
2R—31 to 41 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 30 to 50 percent

Dissimilar Minor Components

Royst soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Nuss soils
Percentage of map unit: 5 percent
Landform: Hillslopes, escarpments

550—Redcliff-Rock outcrop complex, 30 to 65 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,070 to 5,350 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Redcliff, south, and similar soils: 65 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Redcliff, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as basalt with a minor influence of volcanic ash
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE SOUTH 10-12 PZ (R010XA007OR)

Typical profile
A1—0 to 3 inches; very gravelly loam
A2—3 to 12 inches; very cobbly sandy loam
Bw—12 to 32 inches; very cobbly sandy clay loam
2R—32 to 42 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 30 to 65 percent

Dissimilar Minor Components

Lapine soils
Percentage of map unit: 10 percent
Landform: Hillslopes

Xerolls
Percentage of map unit: 5 percent
Landform: Hillslopes

551—Reese-Ozamis complex, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,260 to 4,300 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Reese and similar soils: 45 percent
Ozamis and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Reese

Setting
Landform: Alluvial flats

Properties and qualities
Parent material: Lacustrine and alluvial deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table (minimum depth): About 12 to 36 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 24 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 350
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC MEADOW (R024XY002OR)

Typical profile
An1—0 to 4 inches; silty clay
2An2—4 to 10 inches; loam
2Bnq—10 to 33 inches; loam
3Bq1—33 to 44 inches; loam
4Bq2—44 to 60 inches; loam

Characteristics of Ozamis

Setting
Landform: Alluvial flats

Properties and qualities
Parent material: Lacustrine and alluvial deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table (minimum depth): About 12 to 48 inches (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Available water capacity: High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 5w
Ecological site: SODIC MEADOW (R024XY002OR)

Typical profile
Ag—0 to 10 inches; silty clay
Cg—10 to 34 inches; silt loam
2C—34 to 36 inches; ashy coarse sand
3Cg—36 to 60 inches; very fine sandy loam

Dissimilar Minor Components

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

Turpin soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Playas
Percentage of map unit: 5 percent
Landform: Playas

552—Reluctan loam, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,590 to 5,560 feet
Mean annual precipitation: 11 to 13 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Reluctan and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Reluctan

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 2 inches; loam
A2—2 to 9 inches; sandy loam
Bt—9 to 26 inches; sandy clay loam
R—26 to 36 inches; bedrock

Dissimilar Minor Components

Pernty soils
Percentage of map unit: 5 percent
Landform: Lava plateaus, hillslopes

Teguro soils
Percentage of map unit: 5 percent
Landform: Lava plateaus, hillslopes

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus, hillslopes, ridges

553—Reluctan-Arness complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,520 to 5,520 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Reluctan and similar soils: 50 percent
Arness and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Reluctan

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 2 inches; stony sandy loam
A2—2 to 9 inches; sandy loam
Bt—9 to 26 inches; sandy clay loam
R—26 to 36 inches; bedrock

Characteristics of Arness

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Residuum and colluvium derived from volcanic rock such as welded tuff
Slope range: 2 to 20 percent
Depth to restrictive features: 12 to 19 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A—0 to 2 inches; stony loam
AB—2 to 9 inches; gravelly loam

Bt—9 to 17 inches; gravelly clay loam
Bkqm—17 to 21 inches; cemented material
R—21 to 31 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

Borobey soils
Percentage of map unit: 3 percent
Landform: Lake terraces

Playas
Percentage of map unit: 2 percent
Landform: Playas

554—Riddleranch stony loam, 15 to 40 percent north slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,520 to 4,650 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Riddleranch, north, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Riddleranch, North

Setting
Landform: Deeply dissected lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 15 to 40 percent
Depth to restrictive feature: 20 to 35 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID NORTH 8-10 PZ (R023XY602OR)

Typical profile
A—0 to 8 inches; stony loam
Bt—8 to 28 inches; very cobbly loam
R—28 to 38 inches; bedrock

Dissimilar Minor Components

Boilout soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Cleet soils
Percentage of map unit: 5 percent
Landform: Fan remnants

555—Riddleranch very gravelly loam, 30 to 50 percent north slopes

Map Unit Setting

General landscape: Lava plateaus, mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,600 to 5,360 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Riddleranch, north, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Riddleranch, North

Setting
Landform: Deeply dissected lava plateaus, mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 30 to 50 percent
Depth to restrictive feature: 20 to 35 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 10-12 PZ (R023XY308OR)

Typical profile
A—0 to 8 inches; very gravelly loam
Bt—8 to 28 inches; very cobbly loam
R—28 to 38 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Felcher soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

556—Riddleranch-Lambring-Rock outcrop complex, 20 to 50 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,440 to 5,650 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Riddleranch, south, and similar soils: 40 percent
Lambring, north, and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Riddleranch, South

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 50 percent
Depth to restrictive feature: 20 to 35 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY SOUTH SLOPES 11-13 PZ (R023XY301OR)

Typical profile
A—0 to 8 inches; very stony sandy loam
Bt—8 to 28 inches; very cobbly loam
R—28 to 38 inches; bedrock

Characteristics of Lambring, North

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as tuff, andesite, or basalt
Slope range: 20 to 50 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 5 inches; very stony loam
A2—5 to 20 inches; very cobbly sandy loam
C—20 to 50 inches; extremely cobbly loamy sand
2R—50 to 60 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 50 percent

Dissimilar Minor Components

Cleavage soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Fitzwater soils
Percentage of map unit: 3 percent
Landform: Mountain slopes

Bullump soils
Percentage of map unit: 2 percent
Landform: Hillslopes

557—Rinconflat stony loam, 3 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,260 to 4,990 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Rinconflat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Rinconflat

Setting
Landform: Alluvial fans

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 3 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 4 inches; stony loam
Bw—4 to 29 inches; very cobbly loam
2C—29 to 61 inches; cobbly sandy loam

Dissimilar Minor Components

Raz soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Brace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

558—Rock outcrop and Rubble land, 20 to 60 percent slopes

Map Unit Setting

General landscape: Hills, mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 5,350 feet
Mean annual precipitation: 9 to 17 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Rock outcrop: 60 percent
Rubble land: 35 percent
Dissimilar minor component: 5 percent

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 60 percent

Characteristics of Rubble Land

Description of areas: Accumulations of loose, angular volcanic rock fragments
Slope range: 20 to 60 percent

Dissimilar Minor Component

Felcher soils
Percentage of map unit: 5 percent
Landform: Mountain slopes

559—Rock outcrop-Blackhills complex, 15 to 35 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,800 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 45 to 47 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Rock outcrop: 55 percent
Blackhills and similar soils: 35 percent
Dissimilar minor component: 10 percent

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 35 percent

Characteristics of Blackhills

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basaltic tuff breccia
Slope range: 15 to 35 percent
Depth to restrictive feature: 10 to 17 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 8 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: JUNIPER PUMICE SOUTH 10-12 PZ (R010XA007OR)

Typical profile
A1—0 to 2 inches; very gravelly ashy sand
A2—2 to 8 inches; very gravelly ashy sandy loam
Bk—8 to 11 inches; extremely gravelly ashy sandy loam
R—11 to 21 inches; bedrock

Dissimilar Minor Component

Rubble land
Percentage of map unit: 10 percent

560—Rock outcrop-Blackhills-Glencabin complex, 15 to 55 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 5,200 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Rock outcrop: 40 percent
Blackhills and similar soils: 30 percent
Glencabin, north, and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 55 percent

Characteristics of Blackhills

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basaltic tuff breccia
Slope range: 15 to 55 percent
Depth to restrictive feature: 10 to 17 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 8 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: JUNIPER PUMICE SOUTH 10-12 PZ (R010XA007OR)

Typical profile
A1—0 to 2 inches; extremely gravelly ashy sandy loam
A2—2 to 8 inches; very gravelly ashy sandy loam
Bk—8 to 11 inches; extremely gravelly ashy sandy loam
R—11 to 21 inches; bedrock

Characteristics of Glencabin, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 15 to 55 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)

Typical profile
A1—0 to 5 inches; cobbly ashy fine sandy loam
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Dissimilar Minor Components

Chesebro soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Derallo soils
Percentage of map unit: 5 percent
Landform: Hillslopes

561—Rock outcrop-Felcher association, 30 to 70 percent south slopes

Map Unit Setting

General landscape: Hills, mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 5,410 feet
Mean annual precipitation: 8 to 12 inches

Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Rock outcrop: 50 percent
Felcher, south, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 30 to 70 percent

Characteristics of Felcher, South

Setting
Landform: Mountain slopes, hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 30 to 70 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 4 inches; very cobbly clay loam
Bw—4 to 14 inches; very cobbly loam
Bk—14 to 27 inches; extremely stony sandy loam
R—27 to 37 inches; bedrock

Dissimilar Minor Components

Westbutte soils
Percentage of map unit: 5 percent
Landform: Mountain slopes, hillslopes

Riddleranch soils
Percentage of map unit: 5 percent
Landform: Hillslopes, mountain slopes

Redcanyon soils
Percentage of map unit: 5 percent
Landform: Mountain slopes, hillslopes

562—Rock outcrop-Shukash complex, 15 to 50 percent slopes

Map Unit Setting

General landscape: Dissected lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,100 to 5,900 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Rock outcrop: 55 percent
Shukash and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock on escarpments
Slope range: 15 to 50 percent

Characteristics of Shukash

Setting
Landform: Dissected lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 15 to 20 percent
Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice* (CWS112)

Typical profile
A—0 to 3 inches; paragravelly ashy loamy sand
AC—3 to 10 inches; paragravelly ashy loamy coarse sand
C—10 to 37 inches; ashy coarse sand
2Bwb—37 to 60 inches; very stony sandy loam

Dissimilar Minor Components

Steiger soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Shanahan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Norcross soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

563—Rock outcrop-Xeric Haplocambids complex, 20 to 60 percent slopes

Map Unit Setting

General landscape: Escarpments bordering basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,380 to 5,420 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Rock outcrop: 45 percent
Xeric Haplocambids and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 60 percent

Characteristics of Xeric Haplocambids

Setting
Landform: Escarpments

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 60 percent
Depth to restrictive feature: 10 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)

Typical profile
A—0 to 3 inches; extremely stony sandy loam
Bw—3 to 18 inches; very cobbly loam
2R—18 to 28 inches; bedrock

Dissimilar Minor Components

Davey soils
Percentage of map unit: 10 percent
Landform: Fan skirts, alluvial fans

Thompsoncabin soils
Percentage of map unit: 5 percent
Landform: Hillslopes

564—Rock outcrop-Xeric Haplocambids-Rubble land complex, 50 to 90 percent slopes

Map Unit Setting

General landscape: Escarpments bordering basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,260 to 6,210 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Rock outcrop: 40 percent
Xeric Haplocambids, south, and similar soils: 40 percent
Rubble land: 15 percent
Dissimilar minor component: 5 percent

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 50 to 90 percent

Characteristics of Xeric Haplocambids, South

Setting
Landform: Escarpments

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 50 to 90 percent
Depth to restrictive feature: 10 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 3 inches; extremely stony sandy loam
Bw—3 to 18 inches; very cobbly loam
2R—18 to 28 inches; bedrock

Characteristics of Rubble Land

Description of areas: Accumulations of loose, angular volcanic rock fragments
Slope range: 50 to 90 percent

Dissimilar Minor Component

Brezniak soils
Percentage of map unit: 5 percent
Landform: Deeply dissected lava plateaus

565—Rock outcrop-Xerolls complex, 20 to 60 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,700 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Rock outcrop: 75 percent
Xerolls, south, and similar soils: 25 percent

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 60 percent

Characteristics of Xerolls, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash, colluvium, and eolian deposits derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 60 percent
Depth to restrictive feature: 10 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.4 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 7 inches; extremely stony ashy fine sandy loam
Bw—7 to 11 inches; extremely stony ashy fine sandy loam
2R—11 to 21 inches; bedrock

566—Royst very cobbly loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,410 to 6,600 feet
Mean annual precipitation: 14 to 16 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Royst and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Royst

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: MAHOGANY ROCKLAND 10-20 PZ (R021XY403OR)

Typical profile
A1—0 to 3 inches; very cobbly loam
A2—3 to 9 inches; very cobbly loam
Bt—9 to 25 inches; very cobbly clay loam
R—25 to 35 inches; bedrock

Dissimilar Minor Components

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

Murlose soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

567—Royst-Ninemile complex, 2 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,750 to 6,410 feet
Mean annual precipitation: 14 to 16 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Royst and similar soils: 45 percent
Ninemile and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Royst

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ROCKY RIDGES 12-16 PZ (R023XY408OR)

Typical profile
A1—0 to 3 inches; very cobbly loam
A2—3 to 9 inches; very cobbly loam
Bt—9 to 25 inches; very cobbly clay loam
R—25 to 35 inches; bedrock

Characteristics of Ninemile

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 2 to 8 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A—0 to 2 inches; very cobbly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Dunres soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Nuss soils
Percentage of map unit: 5 percent
Landform: Escarpments

568—Royst-Nuss complex, 2 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,790 to 6,310 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Royst and similar soils: 50 percent
Nuss and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Royst

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DEEP LOAMY 16-20 PZ (R021XY410OR)

Typical profile
A1—0 to 3 inches; very stony loam
A2—3 to 9 inches; very cobbly loam
Bt—9 to 25 inches; very cobbly clay loam
R—25 to 35 inches; bedrock

Characteristics of Nuss

Setting
Landform: Structural benches, hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: MAHOGANY ROCKLAND 10-20 PZ (R021XY403OR)

Typical profile
A—0 to 3 inches; gravelly loam
Bw—3 to 17 inches; clay loam
R—17 to 27 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Murlose soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

569—Sagehen very gravelly loam, 0 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,200 to 5,400 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Sagehen and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Sagehen

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 0 to 5 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: THIN SURFACE CLAYPAN 10-16 PZ (R023XY218OR)

Typical profile
A—0 to 3 inches; very gravelly loam
Bw—3 to 11 inches; very cobbly loam
R—11 to 21 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 10 percent

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

570—Sagehen-Raz complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,570 to 5,350 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Sagehen and similar soils: 50 percent
Raz and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Sagehen

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: THIN SURFACE 8-14 PZ (R024XY021OR)

Typical profile
A—0 to 3 inches; extremely gravelly loam
Bw—3 to 11 inches; very cobbly loam
R—11 to 21 inches; bedrock

Characteristics of Raz

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Slope alluvium, colluvium, and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Depth to restrictive features: 10 to 18 inches to a strongly cemented duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 10-12 PZ (R023XY212OR)

Typical profile
A—0 to 4 inches; very gravelly fine sandy loam
Bw—4 to 12 inches; sandy clay loam
Bq—12 to 17 inches; sandy loam
Bkqm—17 to 30 inches; cemented material
2R—30 to 40 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Brace soils
Percentage of map unit: 3 percent
Landform: Lava plateaus

Foleylake soils
Percentage of map unit: 2 percent
Landform: Lava plateaus

571—Salhouse ashy loamy fine sand, 3 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Salhouse and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Salhouse

Setting
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from volcanic ash and mixed volcanic rock
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
C—5 to 42 inches; ashy loamy sand
Bwb—42 to 61 inches; ashy silt loam

Dissimilar Minor Components

Thornlake soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Tonor soils
Percentage of map unit: 5 percent
Landform: Lakebeds

572—Salhouse ashy loamy fine sand, strongly alkaline, 2 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,290 to 4,400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Salhouse, strongly alkaline, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Salhouse, Strongly Alkaline

Setting
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from volcanic ash and mixed volcanic rock
Slope range: 2 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
C—5 to 42 inches; ashy loamy sand
Bwb—42 to 61 inches; ashy silt loam

Dissimilar Minor Components

Thornlake soils
Percentage of map unit: 8 percent
Landform: Lakebeds

Morehouse soils
Percentage of map unit: 7 percent
Landform: Dunes on lakebeds

573—Salhouse-Tonor complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,290 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Salhouse and similar soils: 45 percent
Tonor and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Salhouse

Setting
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from volcanic ash and mixed volcanic rock
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
C—5 to 42 inches; ashy loamy sand
Bwb—42 to 61 inches; ashy silt loam

Characteristics of Tonor

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very high (about 12.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SILTY ALKALINE BOTTOM 8-10 PZ (R024XY645OR)

Typical profile
A—0 to 3 inches; ashy silt loam
Bw—3 to 11 inches; ashy loam
Bkn—11 to 43 inches; ashy sandy loam
2C—43 to 60 inches; very paragravelly ashy silt loam

Dissimilar Minor Components

Thornlake soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Fossilake soils
Percentage of map unit: 5 percent
Landform: Depressions of lakebeds

574—Seharney very stony sandy loam, 10 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,420 to 5,250 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Seharney and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Seharney

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as andesite or basalt with an influence of eolian material
Slope range: 10 to 20 percent
Depth to restrictive features: 11 to 19 inches to a strongly cemented duripan, 13 to 30 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 3 inches; very stony sandy loam
Bw—3 to 11 inches; very cobbly loam
Bkqm—11 to 13 inches; cemented material
R—13 to 23 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Brace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

575—Seharney-Rabbithills-Enko complex, 1 to 20 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,550 to 4,650 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 50 to 100 days

Map Unit Composition

Seharney and similar soils: 40 percent
Rabbithills and similar soils: 35 percent
Enko and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Seharney

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as andesite or basalt with an influence of eolian material
Slope range: 2 to 20 percent
Depth to restrictive features: 11 to 19 inches to a strongly cemented duripan, 13 to 30 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A—0 to 3 inches; gravelly sandy loam
Bw—3 to 11 inches; very cobbly loam
Bkqm—11 to 13 inches; cemented material
R—13 to 23 inches; bedrock

Characteristics of Rabbithills

Setting
Landform: Lake terraces, fan remnants

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 1 to 5 percent
Depth to restrictive features: 12 to 16 inches to a strongly cemented duripan, 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 3 inches; gravelly sandy loam
A2—3 to 12 inches; sandy loam
Bkqm—12 to 22 inches; cemented fine sandy loam
2BCk—22 to 40 inches; loam
2Cr—40 to 60 inches; bedrock

Characteristics of Enko

Setting
Landform: Swales, fan piedmonts

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock with an influence of eolian material
Slope range: 1 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)

Typical profile
A—0 to 2 inches; sandy loam
Bw—2 to 11 inches; sandy loam
Bq—11 to 35 inches; sandy loam
Bkq—35 to 60 inches; paragravelly sandy loam

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 4 percent

Raz soils
Percentage of map unit: 4 percent
Landform: Lava plateaus

Calderwood soils
Percentage of map unit: 2 percent
Landform: Lava plateaus

576—Senra ashy fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,510 to 5,120 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Senra and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 0 to 5 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Dissimilar Minor Components

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Lastcall soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Goodtack soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

577—Senra ashy fine sandy loam, 1 to 12 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 4,980 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Senra and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 12 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Dissimilar Minor Components

Gradon soils
Percentage of map unit: 5 percent
Landform: Fan remnants

Morfitt soils
Percentage of map unit: 3 percent
Landform: Alluvial fans, basin floors

Raztack soils
Percentage of map unit: 2 percent
Landform: Lakebeds

578—Senra-Borobey complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,570 to 4,650 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Senra and similar soils: 65 percent
Borobey and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 0 to 2 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Characteristics of Borobey

Setting
Landform: Depressions of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SWALE 10-14 PZ (R023XY202OR)

Typical profile
A—0 to 4 inches; ashy fine sandy loam
AB—4 to 12 inches; ashy loamy sand
Bq—12 to 50 inches; ashy loamy fine sand
C—50 to 68 inches; ashy loamy sand

Dissimilar Minor Components

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Lastcall soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

579—Senra-Dunres complex, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,700 to 5,350 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Senra and similar soils: 60 percent
Dunres and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia

Slope range: 1 to 8 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; ashy very fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Characteristics of Dunres

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 14 to 20 inches to an indurated duripan, 20 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A—0 to 4 inches; cobbly ashy very fine sand
Bt1—4 to 8 inches; ashy sandy clay loam
2Bt2—8 to 19 inches; clay
2Bqm1—19 to 32 inches; cemented material
2Bqm2—32 to 56 inches; cemented material
2R—56 to 60 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Swalesilver soils
Percentage of map unit: 5 percent
Landform: Closed depressions of lava plateaus

580—Senra-Goodtack complex, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,650 to 4,920 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Senra and similar soils: 65 percent
Goodtack and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 10 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Characteristics of Goodtack

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 10 percent
Depth to restrictive features: 16 to 20 inches to an indurated duripan, 20 to 48 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE PLAINS 8-11 PZ (R010XA659OR)

Typical profile
A1—0 to 3 inches; ashy loamy very fine sand
A2—3 to 7 inches; ashy fine sandy loam
Bt—7 to 19 inches; ashy fine sandy loam
Bkqm—19 to 46 inches; cemented material
R—46 to 56 inches; bedrock

Dissimilar Minor Components

Moonbeam soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Hayespring soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

581—Senra-Goodtack complex, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,690 to 5,170 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Senra and similar soils: 50 percent
Goodtack and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 5 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; ashy sandy clay loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Characteristics of Goodtack

Setting
Landform: Dissected lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 20 percent
Depth to restrictive features: 16 to 20 inches to an indurated duripan, 20 to 48 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 3 inches; ashy loam
A2—3 to 7 inches; ashy fine sandy loam
Bt—7 to 19 inches; ashy fine sandy loam
Bkqm—19 to 46 inches; cemented material
R—46 to 56 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Playas
Percentage of map unit: 5 percent
Landform: Playas

582—Senra-Goodtack-Suckerflat complex, 1 to 4 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,420 to 4,630 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Senra and similar soils: 35 percent
Goodtack and similar soils: 30 percent
Suckerflat and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 4 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; cobbly ashy fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Characteristics of Goodtack

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia

Slope range: 1 to 4 percent
Depth to restrictive features: 16 to 20 inches to an indurated duripan, 20 to 48 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Low (about 3.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID PLAINS 8-11 PZ (R023XY604OR)

Typical profile
A1—0 to 3 inches; gravelly ashy loamy fine sand
A2—3 to 7 inches; ashy fine sandy loam
Bt—7 to 19 inches; ashy fine sandy loam
Bkqm—19 to 46 inches; cemented material
R—46 to 56 inches; bedrock

Characteristics of Suckerflat

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 4 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID PLAINS 8-11 PZ (R023XY604OR)

Typical profile
A—0 to 8 inches; cobbly ashy fine sandy loam
Bw—8 to 18 inches; cobbly ashy loam
2R—18 to 28 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Wegert soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

583—Senra-Hayespring complex, 1 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,560 to 5,230 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Senra and similar soils: 65 percent
Hayespring and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 8 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; gravelly ashy very fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Characteristics of Hayespring

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Dissimilar Minor Components

Swalesilver soils
Percentage of map unit: 5 percent
Landform: Closed depressions of lava plateaus

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Lastcall soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

584—Senra-Hayespring complex, droughty, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,580 to 4,870 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Senra, droughty, and similar soils: 45 percent
Hayespring, droughty, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Senra, Droughty

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 10 percent

Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)

Typical profile
A1—0 to 3 inches; ashy fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Characteristics of Hayespring, Droughty

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 2 to 10 percent
Depth to restrictive features: 20 to 40 inches to a moderately cemented duripan, 22 to 52 inches to a very strongly cemented duripan, 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE HILLS 8-11 PZ (R010XA673OR)

Typical profile
A1—0 to 3 inches; gravelly ashy very fine sandy loam
A2—3 to 10 inches; stony ashy fine sandy loam
Bt1—10 to 17 inches; cobbly ashy clay loam
Bt2—17 to 24 inches; ashy clay loam
Bqm—24 to 44 inches; cemented material
R—44 to 54 inches; bedrock

Dissimilar Minor Components

Goodtack soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

585—Senra-Moonbeam complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,580 to 4,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Senra and similar soils: 65 percent
Moonbeam and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Senra

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 15 percent
Depth to restrictive features: 15 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; gravelly ashy fine sandy loam
A2—3 to 10 inches; ashy loam
Bt1—10 to 15 inches; ashy sandy clay loam
Bt2—15 to 19 inches; channery ashy clay loam
Bqm—19 to 32 inches; cemented material
R—32 to 42 inches; bedrock

Characteristics of Moonbeam

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 3 inches; cobbly ashy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Goodtack soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Jacksplace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

586—Shanahan paragravelly ashy loamy coarse sand, cool, 0 to 1 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,980 to 5,600 feet
Mean annual precipitation: 16 to 20 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shanahan and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Shanahan

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: *Pinus contorta/Ribes cereum-Purshia tridentata/Acnatherum occidentale ssp. occidentale-pumice* (CLS215)

Typical profile
A1—0 to 4 inches; paragravelly ashy loamy coarse sand
A2—4 to 9 inches; paragravelly ashy loamy coarse sand
C—9 to 38 inches; ashy coarse sand
2Bwb—38 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Steiger soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

587—Shanahan paragravelly ashy loamy coarse sand, low landscape position, 0 to 1 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,770 to 5,190 feet
Mean annual precipitation: 15 to 35 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shanahan, low landscape position, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Shanahan, Low Landscape Position

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned

Plant community class: *Pinus contorta/Acnatherum occidentale ssp. occidentale-basin, pumice* (CLG311)

Typical profile
A1—0 to 4 inches; paragravelly ashy loamy coarse sand
A2—4 to 9 inches; paragravelly ashy loamy coarse sand
C—9 to 38 inches; ashy coarse sand
2Bwb—38 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Steiger soils
Percentage of map unit: 8 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 7 percent

588—Shanahan-Shukash complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,600 to 5,570 feet
Mean annual precipitation: 16 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shanahan, north, and similar soils: 55 percent
Shukash and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Shanahan, North

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: *Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)

Typical profile
A1—0 to 4 inches; paragravelly ashy loamy coarse sand
A2—4 to 9 inches; paragravelly ashy loamy coarse sand
C—9 to 38 inches; ashy coarse sand
2Bwb—38 to 60 inches; gravelly sandy loam

Characteristics of Shukash

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice (CPS212)

Typical profile
A—0 to 3 inches; paragravelly ashy loamy coarse sand
AC—3 to 10 inches; paragravelly ashy loamy coarse sand
C—10 to 37 inches; ashy coarse sand
2Bwb—37 to 60 inches; very stony sandy loam

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Henkle soils
Percentage of map unit: 5 percent
Landform: Volcanic cones

589—Shukash paragravelly ashy loamy coarse sand, 0 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,600 to 5,300 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shukash and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Shukash

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 8 percent
Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice* (CPS212)

Typical profile
A—0 to 3 inches; paragravelly ashy loamy coarse sand
AC—3 to 10 inches; paragravelly ashy loamy coarse sand
C—10 to 37 inches; ashy coarse sand
2Bwb—37 to 60 inches; very stony sandy loam

Dissimilar Minor Components

Shanahan soils
Percentage of map unit: 9 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 6 percent

590—Shukash paragravelly ashy loamy coarse sand, cool, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,600 to 5,780 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shukash, cool, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Shukash, Cool

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice (CLS211)

Typical profile
A—0 to 3 inches; paragravelly ashy loamy coarse sand
AC—3 to 10 inches; paragravelly ashy loamy coarse sand
C—10 to 37 inches; ashy coarse sand
2Bwb—37 to 60 inches; very stony sandy loam

Dissimilar Minor Components

Shanahan soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

591—Shukash-Rock outcrop complex, 15 to 65 percent north slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,700 to 6,010 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shukash, north, and similar soils: 55 percent
Rock outcrop: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Shukash, North

Setting
Landform: Hillslopes, dissected lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 15 to 20 percent
Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice (CWS112)

Typical profile
A—0 to 3 inches; paragravelly ashy loamy coarse sand
AC—3 to 10 inches; paragravelly ashy loamy coarse sand
C—10 to 37 inches; ashy coarse sand
2Bwb—37 to 60 inches; very stony sandy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 65 percent

Dissimilar Minor Components

Steiger soils
Percentage of map unit: 5 percent
Landform: Hillslopes, dissected lava plateaus

Shanahan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Wanoga soils
Percentage of map unit: 5 percent
Landform: Hillslopes, lava plateaus

592—Shukash-Rock outcrop complex, 15 to 65 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,700 to 6,000 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shukash, south, and similar soils: 70 percent
Rock outcrop: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Shukash, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 15 to 65 percent
Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Ceanothus velutinus/ Acnatherum occidentale-pumice* (CPS311)

Typical profile
A—0 to 3 inches; paragravelly ashy loamy coarse sand
AC—3 to 10 inches; paragravelly ashy loamy coarse sand
C—10 to 37 inches; ashy coarse sand
2Bwb—37 to 60 inches; very stony sandy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 65 percent

Dissimilar Minor Components

Steiger soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Wanoga soils
Percentage of map unit: 5 percent
Landform: Hillslopes

593—Shukash-Rock outcrop complex, 3 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,760 to 5,770 feet
Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shukash and similar soils: 60 percent
Rock outcrop: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Shukash

Setting
Landform: Hillslopes, lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 3 to 15 percent
Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice* (CPS212)

Typical profile
A—0 to 3 inches; paragravelly ashy loamy coarse sand
AC—3 to 10 inches; paragravelly ashy loamy coarse sand
C—10 to 37 inches; ashy coarse sand
2Bwb—37 to 60 inches; very stony sandy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 3 to 15 percent

Dissimilar Minor Components

Shanahan soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Wanoga soils
Percentage of map unit: 5 percent
Landform: Hillslopes, lava plateaus

594—Shukash-Rock outcrop complex, cold, 3 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 5,270 to 5,900 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shukash and similar soils: 55 percent
Rock outcrop: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Shukash

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 3 to 15 percent
Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice* (CWS112)

Typical profile
A—0 to 3 inches; paragravelly ashy loamy coarse sand
AC—3 to 10 inches; paragravelly ashy loamy coarse sand
C—10 to 37 inches; ashy coarse sand
2Bwb—37 to 60 inches; very stony sandy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 3 to 15 percent

Dissimilar Minor Components

Steiger soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Shanahan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Wanoga soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

595—Shukash-Rock outcrop complex, high elevation, 3 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,950 to 5,880 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shukash and similar soils: 60 percent
Rock outcrop: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Shukash

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 3 to 15 percent
Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/ Acnatherum occidentale-pumice (CPS213)

Typical profile
A—0 to 3 inches; paragravelly ashy loamy coarse sand
AC—3 to 10 inches; paragravelly ashy loamy coarse sand
C—10 to 37 inches; ashy coarse sand
2Bwb—37 to 60 inches; very stony sandy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 3 to 15 percent

Dissimilar Minor Components

Shanahan soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Wanoga soils
Percentage of map unit: 5 percent
Landform: Lava plateaus, hillslopes

596—Shukash-Shanahan complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,600 to 5,480 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shukash and similar soils: 50 percent
Shanahan and similar soils: 45 percent
Dissimilar minor components: 5 percent

Characteristics of Shukash

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice (CLS211)

Typical profile
A—0 to 3 inches; paragravelly ashy loamy coarse sand
AC—3 to 10 inches; paragravelly ashy loamy coarse sand
C—10 to 37 inches; ashy coarse sand
2Bwb—37 to 60 inches; very stony sandy loam

Characteristics of Shanahan

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt

Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: *Pinus contorta/Artemisia tridentata/Festuca idahoensis-pumice* (CLS111)

Typical profile
A1—0 to 4 inches; paragravelly ashy loamy coarse sand
A2—4 to 9 inches; paragravelly ashy loamy coarse sand
C—9 to 38 inches; ashy coarse sand
2Bwb—38 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 3 percent

Henkle soils
Percentage of map unit: 2 percent
Landform: Volcanic cones

597—Shukash-Wanoga-Rock outcrop complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,600 to 5,440 feet
Mean annual precipitation: 16 to 20 inches
Mean annual air temperature: 43 to 44 degrees F
Frost-free period: 10 to 80 days

Map Unit Composition

Shukash and similar soils: 45 percent
Wanoga and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Shukash

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt

Slope range: 0 to 15 percent
Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)

Typical profile
A—0 to 3 inches; paragravelly ashy loamy coarse sand
AC—3 to 10 inches; paragravelly ashy loamy coarse sand
C—10 to 37 inches; ashy coarse sand
2Bwb—37 to 60 inches; very stony sandy loam

Characteristics of Wanoga

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; gravelly ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 0 to 15 percent

Dissimilar Minor Components

Shanahan soils
Percentage of map unit: 7 percent
Landform: Lava plateaus

Henkle soils
Percentage of map unit: 3 percent
Landform: Volcanic cones

598—Sisters-Wanoga complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,600 to 5,000 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Sisters and similar soils: 65 percent
Wanoga and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Sisters

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum and colluvium derived from volcanic rock such as basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 10 inches; paragravelly ashy loamy sand
AC—10 to 17 inches; ashy loamy sand
C—17 to 33 inches; paragravelly ashy sand

2Bwb—33 to 47 inches; clay loam
2R—47 to 51 inches; bedrock

Characteristics of Wanoga

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; gravelly ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Dissimilar Minor Components

Henkle soils
Percentage of map unit: 5 percent
Landform: Side slopes of lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

599—Sliptrack-Moonbeam complex, 1 to 6 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,900 to 5,100 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Sliptrack and similar soils: 50 percent
Moonbeam and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Sliptrack

Setting

Landform: Depressions of lava plateaus

Properties and qualities

Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 1 to 6 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile

A1—0 to 3 inches; ashy very fine sandy loam
A2—3 to 11 inches; ashy fine sandy loam
Bt1—11 to 16 inches; ashy sandy clay loam
Bt2—16 to 22 inches; ashy clay loam
Bkqm—22 to 60 inches; cemented material

Characteristics of Moonbeam

Setting

Landform: Lava plateaus

Properties and qualities

Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 6 percent
Depth to restrictive features: 13 to 20 inches to an indurated duripan, 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile

A1—0 to 3 inches; cobbly ashy fine sandy loam
A2—3 to 8 inches; gravelly ashy sandy clay loam
2Bt1—8 to 14 inches; clay
2Bt2—14 to 18 inches; clay
2Bqm—18 to 27 inches; cemented material
2R—27 to 37 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 10 percent

Goodtack soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

600—Sliptrack-Oatmanflat complex, 0 to 4 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,900 to 5,070 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Sliptrack and similar soils: 55 percent
Oatmanflat and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Sliptrack

Setting
Landform: Depressions of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 1 to 4 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE CLAYPAN 10-12 PZ (R023XY211OR)

Typical profile
A1—0 to 3 inches; cobbly ashy fine sandy loam
A2—3 to 11 inches; ashy fine sandy loam
Bt1—11 to 16 inches; ashy sandy clay loam
Bt2—16 to 22 inches; ashy clay loam
Bkqm—22 to 60 inches; cemented material

Characteristics of Oatmanflat

Setting
Landform: Swales of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 0 to 2 percent

Depth to restrictive feature: 40 to 60 inches to a strongly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: High (about 11.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: DRY LAKEBED 10-12 PZ (R023XY512OR)

Typical profile
A1—0 to 3 inches; ashy loam
A2—3 to 12 inches; ashy sandy clay loam
Bw—12 to 28 inches; ashy coarse sandy loam
Btb—28 to 44 inches; ashy clay loam
Btqb—44 to 53 inches; gravelly ashy sandy clay loam
Bkqmb—53 to 64 inches; cemented material

Dissimilar Minor Components

Swalesilver soils
Percentage of map unit: 5 percent
Landform: Closed depressions of lava plateaus

Hayespring soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

601—Snakepit loamy sand, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,570 to 5,200 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Snakepit and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Snakepit

Setting
Landform: Depressions of lava plateaus

Properties and qualities
Parent material: Eolian sand and alluvium derived from volcanic rock such as basalt or welded tuff
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 35 inches to a strongly cemented duripan

Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SANDY LOAM 10-12 PZ (R023XY213OR)

Typical profile
A1—0 to 3 inches; loamy sand
A2—3 to 19 inches; loamy sand
Bw—19 to 30 inches; loamy sand
Bq—30 to 33 inches; sandy loam
2Bkqm—33 to 42 inches; cemented material
3Bkq—42 to 63 inches; loamy sand

Dissimilar Minor Components

Rubble land
Percentage of map unit: 5 percent

Spiderhole soils, very cobbly loamy sand surface
Percentage of map unit: 5 percent
Landform: Lava plateaus

Reallis soils
Percentage of map unit: 5 percent
Landform: Alluvial fans, lake terraces

602—Southcat gravelly loamy sand, 0 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,270 to 4,550 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Southcat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Southcat

Setting
Landform: Beach plains

Properties and qualities
Parent material: Eolian deposits and wave-reworked alluvium derived from mixed volcanic rock

Slope range: 0 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
An—0 to 4 inches; gravelly loamy sand
Bnw—4 to 10 inches; sandy loam
Bn—10 to 26 inches; gravelly sandy loam
2C—26 to 62 inches; sand

Dissimilar Minor Components

Salhouse soils
Percentage of map unit: 10 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Playas
Percentage of map unit: 5 percent
Landform: Playas

603—Southcat-Kewake complex, 1 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 5,130 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Southcat and similar soils: 45 percent
Kewake and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Southcat

Setting
Landform: Beach plains

Properties and qualities
Parent material: Eolian deposits and wave-reworked alluvium derived from mixed volcanic rock
Slope range: 1 to 6 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
An—0 to 4 inches; gravelly loamy sand
Bnw—4 to 10 inches; sandy loam
Bn—10 to 26 inches; gravelly sandy loam
2C—26 to 62 inches; sand

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 1 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy loamy fine sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Playas
Percentage of map unit: 10 percent
Landform: Playas

Flagstaff soils
Percentage of map unit: 5 percent
Landform: Lakebeds

604—Southcat-Playas complex, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,190 to 4,400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Southcat and similar soils: 65 percent
Playas: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Southcat

Setting
Landform: Beach plains

Properties and qualities
Parent material: Eolian deposits and wave-reworked alluvium derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
An—0 to 4 inches; fine sand
Bnw—4 to 10 inches; sandy loam
Bn—10 to 26 inches; gravelly sandy loam
2C—26 to 62 inches; sand

Characteristics of Playas

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low

Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Deppy soils
Percentage of map unit: 10 percent
Landform: Lake terraces, fan remnants

Locolake soils
Percentage of map unit: 5 percent
Landform: Lava plateaus, hillslopes

605—Spiderhole complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,660 to 5,600 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Spiderhole, very cobbly loamy sand surface, and similar soils: 45 percent
Spiderhole, very gravelly loamy sand surface, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Spiderhole, Very Cobbly Loamy Sand Surface

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Eolian material and colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 15 percent
Depth to restrictive features: 10 to 20 inches to a strongly cemented duripan, 20 to 28 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Very low (about 0.8 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SANDY LOAM 10-12 PZ (R023XY213OR)

Typical profile
A1—0 to 3 inches; very cobbly loamy sand
A2—3 to 6 inches; gravelly loamy sand
Bt—6 to 10 inches; very cobbly sandy clay loam
Bkqm—10 to 21 inches; cemented material
Bk—21 to 24 inches; loamy coarse sand
R—24 to 34 inches; bedrock

Characteristics of Spiderhole, Very Gravelly Loamy Sand Surface

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Eolian material and colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 15 percent
Depth to restrictive features: 10 to 20 inches to a strongly cemented duripan, 20 to 28 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 4
Available water capacity: Very low (about 0.8 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SHALLOW LOAM 8-10 PZ (R024XY017OR)

Typical profile
A1—0 to 3 inches; very gravelly loamy sand
A2—3 to 6 inches; gravelly loamy sand
Bt—6 to 10 inches; very cobbly sandy clay loam
Bkqm—10 to 21 inches; cemented material
Bk—21 to 24 inches; loamy coarse sand
R—24 to 34 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 10 percent

Raz soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

606—Stampede gravelly fine sandy loam, 1 to 5 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,570 to 4,850 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Stampede and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Stampede

Setting
Landform: Lava plateaus, fan remnants

Properties and qualities
Parent material: Eolian deposits and alluvium derived from mixed volcanic rock
Slope range: 1 to 5 percent
Depth to restrictive feature: 20 to 37 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 2 inches; gravelly fine sandy loam
A2—2 to 9 inches; sandy clay loam
Bt—9 to 22 inches; clay loam
Bkqm—22 to 32 inches; cemented material

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Reluctan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Gradon soils
Percentage of map unit: 5 percent
Landform: Fan remnants

607—Steiger ashy loamy coarse sand, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,630 to 5,320 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Steiger and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Steiger

Setting

Landform: Lava plateaus

Properties and qualities

Parent material: Volcanic ash and pumice over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice* (CPS212)

Typical profile

Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; ashy loamy coarse sand
Bw—4 to 12 inches; paragravelly ashy loamy coarse sand
C—12 to 45 inches; ashy coarse sand
2Bwb—45 to 60 inches; stony sandy loam

Dissimilar Minor Components

Shukash soils

Percentage of map unit: 5 percent
Landform: Lava plateaus

Rock outcrop

Percentage of map unit: 5 percent

Shanahan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

608—Steiger ashy loamy coarse sand, cool, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,610 to 5,050 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Steiger, cool, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Steiger, Cool

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: *Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; ashy loamy coarse sand
Bw—4 to 12 inches; paragravelly ashy loamy coarse sand
C—12 to 45 inches; ashy coarse sand
2Bwb—45 to 60 inches; stony sandy loam

Dissimilar Minor Components

Shukash soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

609—Steiger ashy loamy coarse sand, 3 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,670 to 5,600 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Steiger and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Steiger

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; ashy loamy coarse sand
Bw—4 to 12 inches; paragravelly ashy loamy coarse sand
C—12 to 45 inches; ashy coarse sand
2Bwb—45 to 60 inches; stony sandy loam

Dissimilar Minor Components

Shanahan soils
Percentage of map unit: 6 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

Wanoga soils
Percentage of map unit: 4 percent
Landform: Lava plateaus

610—Steiger-Rock outcrop complex, 30 to 65 percent north slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,660 to 5,050 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Steiger, north, and similar soils: 60 percent
Rock outcrop: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Steiger, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and pumice over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice* (CWS112)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; ashy loamy coarse sand
Bw—4 to 12 inches; paragravelly ashy loamy coarse sand
C—12 to 45 inches; ashy coarse sand
2Bwb—45 to 60 inches; stony sandy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 30 to 65 percent

Dissimilar Minor Components

Wanoga soils
Percentage of map unit: 6 percent
Landform: Hillslopes

Henkle soils
Percentage of map unit: 4 percent
Landform: Hillslopes

611—Steiger-Rock outcrop complex, 30 to 65 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,740 to 5,470 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Steiger, south, and similar soils: 65 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Steiger, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and pumice over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Arctostaphylos patula/ Acnatherum occidentale-pumice* (CPS213)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; ashy loamy coarse sand
Bw—4 to 12 inches; paragravelly ashy loamy coarse sand
C—12 to 45 inches; ashy coarse sand
2Bwb—45 to 60 inches; stony sandy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 30 to 65 percent

Dissimilar Minor Components

Henkle soils
Percentage of map unit: 9 percent
Landform: Hillslopes

Wanoga soils
Percentage of map unit: 6 percent
Landform: Hillslopes

612—Suckerflat ashy loamy fine sand, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,750 to 5,100 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Suckerflat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Suckerflat

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY LOAM 10-12 PZ (R023XY516OR)

Typical profile
A—0 to 8 inches; ashy loamy fine sand
Bw—8 to 18 inches; cobbly ashy loam
2R—18 to 28 inches; bedrock

Dissimilar Minor Components

Hayespring soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Goodtack soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Connleyhills soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

613—Suckerflat ashy loamy sand, 0 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,790 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Suckerflat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Suckerflat

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 0 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 8 inches; ashy loamy sand
Bw—8 to 18 inches; cobbly ashy loam
2R—18 to 28 inches; bedrock

Dissimilar Minor Components

Weglike soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

614—Suckerflat cobbly ashy loam, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,800 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Suckerflat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Suckerflat

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 10 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID PLAINS 8-11 PZ (R023XY604OR)

Typical profile
A—0 to 8 inches; cobbly ashy loam
Bw—8 to 18 inches; cobbly ashy loam
2R—18 to 28 inches; bedrock

Dissimilar Minor Components

Senra soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

615—Suckerflat-Rock outcrop complex, 15 to 40 percent north slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,310 to 5,230 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Suckerflat, north, and similar soils: 50 percent
Rock outcrop: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Suckerflat, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 15 to 40 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)

Typical profile
A—0 to 8 inches; ashy loamy sand
Bw—8 to 18 inches; cobbly ashy loam
2R—18 to 28 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 40 percent

Dissimilar Minor Components

Lapham soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lava plateaus

616—Suckerflat-Rock outcrop complex, 15 to 40 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Suckerflat, south, and similar soils: 45 percent
Rock outcrop: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Suckerflat, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 15 to 40 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 8 inches; ashy loamy sand
Bw—8 to 18 inches; cobbly ashy loam
2R—18 to 28 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 40 percent

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 10 percent
Landform: Dunes on lava plateaus

Lapham soils
Percentage of map unit: 5 percent
Landform: Lake terraces

617—Suckerflat-Rock outcrop complex, 8 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,650 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Suckerflat and similar soils: 50 percent
Rock outcrop: 40 percent
Dissimilar minor component: 10 percent

Characteristics of Suckerflat

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 8 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 8 inches; ashy loamy sand
Bw—8 to 18 inches; cobbly ashy loam
2R—18 to 28 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 8 to 15 percent

Dissimilar Minor Component

Morehouse soils
Percentage of map unit: 10 percent
Landform: Dunes on lava plateaus

618—Suckerflat-Weglike complex, 2 to 6 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,330 to 4,560 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Suckerflat and similar soils: 50 percent
Weglike and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Suckerflat

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 2 to 6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID PLAINS 8-11 PZ (R023XY604OR)

Typical profile
A—0 to 8 inches; cobbly ashy loam
Bw—8 to 18 inches; cobbly ashy loam
2R—18 to 28 inches; bedrock

Characteristics of Weglike

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as tuff breccia or basalt
Slope range: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 3 inches; ashy loamy sand
AB—3 to 12 inches; ashy sandy loam
2Bwb1—12 to 22 inches; gravelly loam
2Bwb2—22 to 23 inches; extremely gravelly loam
2R—23 to 33 inches; bedrock

Dissimilar Minor Components

Fort Rock soils
Percentage of map unit: 10 percent
Landform: Lake terraces

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lava plateaus

619—Silverash ashy fine sandy loam, 0 to 1 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,310 to 5,270 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Silverash and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Silverash

Setting
Landform: Closed depressions of lava plateaus

Properties and qualities
Parent material: Volcanic ash mixed with lacustrine and alluvial deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 8 inches (see Water Features table)
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: PONDED CLAY (R023XY200OR)

Typical profile
A—0 to 2 inches; ashy fine sandy loam
AE—2 to 8 inches; ashy loam
Bt—8 to 21 inches; clay
C—21 to 62 inches; sandy clay loam

Dissimilar Minor Components

Playas
Percentage of map unit: 10 percent
Landform: Playas

Millenium soils
Percentage of map unit: 5 percent
Landform: Lakebeds

620—Swalesilver loam, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins, lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,310 to 6,220 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Swalesilver and similar soils: 90 percent
Dissimilar minor component: 10 percent

Characteristics of Swalesilver

Setting
Landform: Lake terraces, closed depressions of lava plateaus

Properties and qualities
Parent material: Alluvial and lacustrine deposits derived from mixed volcanic rock with an influence of volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 6 inches (see Water Features table)
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: PONDED CLAY (R023XY200OR)

Typical profile
A—0 to 4 inches; loam
2Bt—4 to 16 inches; clay
3BC—16 to 60 inches; loam

Dissimilar Minor Component

Playas
Percentage of map unit: 10 percent
Landform: Playas

621—Swalesilver silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins, lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,550 to 5,140 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Swalesilver and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Swalesilver

Setting
Landform: Lake terraces, closed depressions of lava plateaus

Properties and qualities
Parent material: Alluvial and lacustrine deposits derived from mixed volcanic rock with an influence of volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface to a depth of 6 inches (see Water Features table)
Salinity (maximum): Very slightly saline (about 3 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: High (about 10.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: PONDED CLAY (R023XY200OR)

Typical profile
A—0 to 4 inches; silt loam
2Bt—4 to 16 inches; clay
3BC—16 to 60 inches; loam

Dissimilar Minor Components

Playas
Percentage of map unit: 10 percent
Landform: Playas

Morfitt soils
Percentage of map unit: 5 percent
Landform: Alluvial fans, basin floors

622—Teguro cobbly loam, 2 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,080 to 5,510 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Teguro and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Teguro

Setting
Landform: Hillslopes, lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY LOAM 11-13 PZ (R023XY316OR)

Typical profile
A1—0 to 2 inches; cobbly loam
A2—2 to 8 inches; cobbly loam
Bt—8 to 15 inches; clay loam
R—15 to 25 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 5 percent

Reluctan soils
Percentage of map unit: 5 percent
Landform: Lava plateaus, hillslopes

Menbo soils, dry
Percentage of map unit: 5 percent
Landform: Hillslopes

623—Teguro gravelly loam, 5 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,970 to 6,310 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Teguro and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Teguro

Setting
Landform: Hillslopes, lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 5 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 2 inches; gravelly loam
A2—2 to 8 inches; cobbly loam
Bt—8 to 15 inches; clay loam
R—15 to 25 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 4 percent

Fitzwater soils
Percentage of map unit: 4 percent
Landform: Hillslopes

Lithic Haploxerolls
Percentage of map unit: 4 percent
Landform: Lava plateaus

Carvix soils
Percentage of map unit: 3 percent
Landform: High stream terraces

624—Thompsoncabin, extremely bouldery-Thompsoncabin-Rock outcrop complex, 15 to 70 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,340 to 5,860 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Thompsoncabin, extremely bouldery, and similar soils: 40 percent
Thompsoncabin and similar soils: 30 percent
Rock outcrop: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Thompsoncabin, Extremely Bouldery

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Mixed eolian deposits and colluvium and residuum derived from volcanic rock such as basalt
Slope range: 15 to 70 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 29
Available water capacity: Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)

Typical profile
An—0 to 3 inches; extremely stony sandy loam
Btkn—3 to 14 inches; extremely cobbly clay loam
R—14 to 24 inches; bedrock

Characteristics of Thompsoncabin

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Mixed eolian deposits and colluvium and residuum derived from volcanic rock such as basalt
Slope range: 15 to 70 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 29
Available water capacity: Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: STONY ALKALINE SLOPES 6-10 PZ (R024XY640OR)

Typical profile
An—0 to 3 inches; extremely cobbly fine sandy loam
Btkn—3 to 14 inches; extremely cobbly clay loam
R—14 to 24 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 70 percent

Dissimilar Minor Components

Catlow soils
Percentage of map unit: 5 percent
Landform: Old beach terraces, old lake terraces

Davey soils
Percentage of map unit: 5 percent
Landform: Fan skirts, alluvial fans

625—Thompsoncabin-Wildhill complex, 20 to 60 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,260 to 5,280 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Thompsoncabin and similar soils: 55 percent
Wildhill and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Thompsoncabin

Setting

Landform: Hillslopes

Properties and qualities

Parent material: Mixed eolian deposits and colluvium and residuum derived from volcanic rock such as basalt
Slope range: 20 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 29
Available water capacity: Very low (about 0.6 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Ecological site: DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)

Typical profile

An—0 to 3 inches; very stony sandy loam
Btkn—3 to 14 inches; extremely cobbly clay loam
R—14 to 24 inches; bedrock

Characteristics of Wildhill

Setting

Landform: Bedrock-controlled lake terrace escarpments

Properties and qualities

Parent material: Mixed eolian deposits, alluvium, and colluvium derived from volcanic rock such as basalt
Slope range: 20 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 20
Available water capacity: Very low (about 2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)

Typical profile

A1—0 to 2 inches; very cobbly loam
A2—2 to 9 inches; very cobbly fine sandy loam
Btn—9 to 14 inches; very cobbly sandy clay loam
Btknq—14 to 25 inches; very cobbly sandy clay loam
R—25 to 35 inches; bedrock

Dissimilar Minor Components

McConnel soils
Percentage of map unit: 7 percent
Landform: Pediments, beach terraces, lake terraces

Rock outcrop
Percentage of map unit: 3 percent

Yankeewell soils
Percentage of map unit: 3 percent
Landform: Hillslopes

Felcher soils
Percentage of map unit: 1 percent
Landform: Hillslopes

Oreneva soils
Percentage of map unit: 1 percent
Landform: Hillslopes

626—Thornlake ashy sandy loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Thornlake and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Thornlake

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 46
Available water capacity: High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALINE BASIN 8-10 PZ (R024XY625OR)

Typical profile
A—0 to 7 inches; ashy sandy loam
Bn—7 to 25 inches; ashy loam
Bkn—25 to 61 inches; ashy sandy loam

Dissimilar Minor Components

Salhouse soils
Percentage of map unit: 4 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Abert soils
Percentage of map unit: 4 percent
Landform: Lakebeds

Bunyard soils
Percentage of map unit: 4 percent
Landform: Lake terraces

Tuffcabin soils
Percentage of map unit: 3 percent
Landform: Beach ridges

627—Thornlake ashy sandy loam, nonsodic surface, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Thornlake, nonsodic surface, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Thornlake, Nonsodic Surface

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 46
Available water capacity: High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY BASIN (R024XY009OR)

Typical profile
A—0 to 7 inches; ashy sandy loam
Bn—7 to 25 inches; ashy loam
Bkn—25 to 61 inches; ashy sandy loam

Dissimilar Minor Components

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lakebeds

Abert soils
Percentage of map unit: 5 percent
Landform: Lakebeds

628—Thornlake complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Thornlake, strongly alkaline, and similar soils: 45 percent
Thornlake, moderately alkaline, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Thornlake, Strongly Alkaline

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 46
Available water capacity: High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALINE BASIN 8-10 PZ (R024XY625OR)

Typical profile
A—0 to 7 inches; ashy sandy loam
Bn—7 to 25 inches; ashy loam
Bkn—25 to 61 inches; ashy sandy loam

Characteristics of Thornlake, Moderately Alkaline

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 46
Available water capacity: Very high (about 12.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY BASIN (R024XY009OR)

Typical profile
A—0 to 7 inches; ashy silt loam
Bn—7 to 25 inches; ashy loam
Bkn—25 to 61 inches; ashy sandy loam

Dissimilar Minor Components

Abert soils
Percentage of map unit: 6 percent
Landform: Lakebeds

Salhouse soils
Percentage of map unit: 3 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Playas
Percentage of map unit: 3 percent
Landform: Playas

Morehouse soils
Percentage of map unit: 3 percent
Landform: Dunes on lakebeds

629—Thornlake-Catlow-Kewake complex, 1 to 45 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,280 to 4,540 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Thornlake and similar soils: 40 percent
Catlow and similar soils: 35 percent
Kewake and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Thornlake

Setting
Landform: Fan piedmonts

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 1 to 6 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: High (about 9.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A—0 to 5 inches; gravelly ashy loamy sand
Bkq—5 to 59 inches; gravelly ashy sandy loam
C—59 to 65 inches; ashy fine sandy loam

Characteristics of Catlow

Setting
Landform: Old beach terraces, old lake terraces

Properties and qualities
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 1 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC TERRACE 6-10 PZ (R024XY014OR)

Typical profile
A—0 to 3 inches; gravelly loamy sand
Bw—3 to 21 inches; extremely cobbly fine sandy loam
Bq—21 to 30 inches; extremely gravelly sandy loam
C—30 to 60 inches; extremely gravelly sandy loam

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 2 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Deppy soils
Percentage of map unit: 3 percent
Landform: Lake terraces, fan remnants

Rubble land
Percentage of map unit: 3 percent

Enko soils
Percentage of map unit: 2 percent
Landform: Swales, fan piedmonts

Thornlake soils
Percentage of map unit: 2 percent
Landform: Lakebeds

630—Thornlake-Kewake complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,340 to 4,780 feet
Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Thornlake and similar soils: 70 percent
Kewake and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Thornlake

Setting
Landform: Fan piedmonts

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: High (about 9.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A—0 to 5 inches; gravelly ashy loamy sand
Bkq—5 to 59 inches; gravelly ashy sandy loam
C—59 to 65 inches; ashy fine sandy loam

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy loamy sand
C1—4 to 18 inches; ashy loamy fine sand

C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Flagstaff soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Thornlake soils, strongly alkaline
Percentage of map unit: 5 percent
Landform: Lakebeds

631—Thornlake-Morehouse complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,290 to 4,320 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Thornlake and similar soils: 55 percent
Morehouse and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Thornlake

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 46
Available water capacity: High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY BASIN (R024XY009OR)

Typical profile
A—0 to 7 inches; ashy sandy loam
Bn—7 to 25 inches; ashy loam
Bkn—25 to 61 inches; ashy sandy loam

Characteristics of Morehouse

Setting
Landform: Dunes on lakebeds

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE DUNES 8-10 PZ (R023XY610OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Salhouse soils
Percentage of map unit: 10 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Tonor soils
Percentage of map unit: 5 percent
Landform: Lakebeds

632—Thornlake-Salhouse complex, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,310 to 4,330 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Thornlake and similar soils: 60 percent
Salhouse and similar soils: 30 percent
Dissimilar minor component: 10 percent

Characteristics of Thornlake

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 46
Available water capacity: High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALINE BASIN 8-10 PZ (R024XY625OR)

Typical profile
A—0 to 7 inches; ashy sandy loam
Bn—7 to 25 inches; ashy loam
Bkn—25 to 61 inches; ashy sandy loam

Characteristics of Salhouse

Setting
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from volcanic ash and mixed volcanic rock
Slope range: 3 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: High (about 9.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 5 inches; ashy loamy sand
C—5 to 42 inches; ashy loamy sand
Bwb—42 to 61 inches; ashy silt loam

Dissimilar Minor Component

Playas
Percentage of map unit: 10 percent
Landform: Playas

633—Thornlake-Salhouse complex, dunes, 0 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,290 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Thornlake, dunes, and similar soils: 45 percent
Salhouse, dunes, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Thornlake, Dunes

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 46
Available water capacity: Very high (about 12.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY BASIN (R024XY009OR)

Typical profile
A—0 to 7 inches; ashy silt loam
Bn—7 to 25 inches; ashy loam
Bkn—25 to 61 inches; ashy sandy loam

Characteristics of Salhouse, Dunes

Setting
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from volcanic ash and mixed volcanic rock
Slope range: 3 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
C—5 to 42 inches; ashy loamy sand
Bwb—42 to 61 inches; ashy silt loam

Dissimilar Minor Components

Fossilake soils
Percentage of map unit: 10 percent
Landform: Depressions of lakebeds

Tonor soils
Percentage of map unit: 5 percent
Landform: Lakebeds

634—Thornlake-Salhouse-Fossilake complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,290 to 4,320 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Thornlake and similar soils: 45 percent
Salhouse and similar soils: 25 percent
Fossilake and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Thornlake

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 46

Available water capacity: High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALINE BASIN 8-10 PZ (R024XY625OR)

Typical profile
A—0 to 7 inches; ashy sandy loam
Bn—7 to 25 inches; ashy loam
Bkn—25 to 61 inches; ashy sandy loam

Characteristics of Salhouse

Setting
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Properties and qualities
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from volcanic ash and mixed volcanic rock
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
C—5 to 42 inches; ashy loamy sand
Bwb—42 to 61 inches; ashy silt loam

Characteristics of Fossilake

Setting
Landform: Depressions of lakebeds

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Strongly saline (about 23 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 65
Available water capacity: Very high (about 13.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC LAKE TERRACE (R024XY114OR)

Typical profile
Anz1—0 to 1 inch; ashy silt loam
Anz2—1 to 3 inches; ashy very fine sandy loam
Bn—3 to 15 inches; ashy silt loam
Cn—15 to 31 inches; stratified ashy loamy sand to ashy loam
Bknb—31 to 43 inches; ashy loam
BCgb—43 to 66 inches; ashy silt loam

Dissimilar Minor Components

Rubble land
Percentage of map unit: 5 percent

Flagstaff soils
Percentage of map unit: 5 percent
Landform: Lakebeds

635—Teguro-Carryback complex, 5 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,630 to 5,670 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Teguro and similar soils: 55 percent
Carryback and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Teguro

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 5 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 2 inches; loam
A2—2 to 8 inches; cobbly loam
Bt—8 to 15 inches; clay loam
R—15 to 25 inches; bedrock

Characteristics of Carryback

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 5 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A1—0 to 3 inches; very stony loam
A2—3 to 7 inches; silty clay loam
2Bt1—7 to 11 inches; clay
2Bt2—11 to 17 inches; clay
2Bt3—17 to 24 inches; clay
2R—24 to 34 inches; bedrock

Dissimilar Minor Components

Cleavage soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Erakatak soils
Percentage of map unit: 5 percent
Landform: Hillslopes, lava plateaus

Fitzwater soils
Percentage of map unit: 5 percent
Landform: Hillslopes

636—Toll gravelly loamy sand, 2 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,390 to 4,600 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Toll and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Toll

Setting
Landform: Fan piedmonts, dunes

Properties and qualities
Parent material: Alluvium and eolian sand deposits derived from mixed volcanic rock
Slope range: 2 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DUNES (R024XY110OR)

Typical profile
A—0 to 15 inches; gravelly loamy sand
C—15 to 40 inches; loamy sand
Cq—40 to 60 inches; gravelly coarse sand

Dissimilar Minor Components

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

McConnel soils
Percentage of map unit: 5 percent
Landform: Pediments, beach terraces, lake terraces

637—Toll-Nevador complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,710 to 4,800 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Toll and similar soils: 45 percent
Nevador and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Toll

Setting
Landform: Alluvial fans

Properties and qualities
Parent material: Alluvium and eolian sand deposits derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DUNES (R024XY110OR)

Typical profile
A—0 to 15 inches; loamy sand
C—15 to 40 inches; loamy sand
Cq—40 to 60 inches; gravelly coarse sand

Characteristics of Nevador

Setting
Landform: Fan remnants

Properties and qualities
Parent material: Alluvium and eolian deposits derived from mixed volcanic rock
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 6
Available water capacity: Moderate (about 6.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY LOAM 8-10 PZ (R024XY018OR)

Typical profile
A—0 to 4 inches; sandy loam
Bt—4 to 25 inches; sandy clay loam
Bkq—25 to 30 inches; extremely gravelly sandy loam
Bq—30 to 60 inches; loamy fine sand

Dissimilar Minor Components

McConnel soils
Percentage of map unit: 8 percent
Landform: Beach terraces, lake terraces

Cooperdraw soils
Percentage of map unit: 7 percent
Landform: Fan remnants

638—Tonor ashy silt loam, 0 to 1 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,580 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Tonor and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Tonor

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 22
Available water capacity: Very high (about 12.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SILTY ALKALINE BOTTOM 8-10 PZ (R024XY645OR)

Typical profile
A—0 to 3 inches; ashy silt loam
Bw—3 to 11 inches; ashy loam
Bkn—11 to 43 inches; ashy sandy loam
2C—43 to 60 inches; very paragravelly ashy silt loam

Dissimilar Minor Components

Abert soils
Percentage of map unit: 5 percent
Landform: Lakebeds

Horning soils
Percentage of map unit: 5 percent
Landform: Stable dunes on lake terraces

Salhouse soils
Percentage of map unit: 3 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Morehouse soils
Percentage of map unit: 2 percent
Landform: Dunes on lakebeds

639—Tuffcabin ashy sandy loam, 1 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,330 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Tuff*cabin and similar soils:* 85 percent
Dissimilar minor components: 15 percent

Characteristics of Tuffcabin

Setting
Landform: Beach ridges

Properties and qualities
Parent material: Eolian deposits over lacustrine deposits derived from volcanic ash and pumice
Slope range: 1 to 10 percent
Depth to restrictive feature: 40 to 60 inches to a moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 5
Available water capacity: High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: BEACH RIDGE 8-10 PZ (R021XY106OR)

Typical profile
A1—0 to 5 inches; ashy sandy loam
A2—5 to 30 inches; ashy sandy loam
2Btnb—30 to 46 inches; ashy clay loam
3Bkqmb—46 to 54 inches; cemented material
3Ckb—54 to 62 inches; ashy loam

Dissimilar Minor Components

Chinarise soils
Percentage of map unit: 5 percent
Landform: Stream terraces, lake terraces

Fossilake soils
Percentage of map unit: 5 percent
Landform: Depressions of lakebeds

Thornlake soils
Percentage of map unit: 5 percent
Landform: Lakebeds

640—Turpin fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,380 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Turpin and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Turpin

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC TERRACE 6-10 PZ (R024XY014OR)

Typical profile
A—0 to 3 inches; fine sandy loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Dissimilar Minor Components

Flagstaff soils
Percentage of map unit: 4 percent
Landform: Lakebeds

McConnel soils
Percentage of map unit: 3 percent
Landform: Beach terraces, lake terraces

Catlow soils
Percentage of map unit: 3 percent
Landform: Old beach terraces, old lake terraces

641—Turpin very fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,250 to 4,370 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Turpin and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Turpin

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A—0 to 3 inches; very fine sandy loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Dissimilar Minor Components

Playas
Percentage of map unit: 5 percent
Landform: Playas

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Mesman soils
Percentage of map unit: 5 percent
Landform: Lake terraces

642—Turpin-Boravall-Playas complex, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 4,520 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Turpin and similar soils: 40 percent
Boravall and similar soils: 30 percent
Playas: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Turpin

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SILTY LOW SODIC TERRACE 6-10 PZ (R024XY120OR)

Typical profile
A—0 to 3 inches; loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Characteristics of Boravall

Setting
Landform: Lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the soil surface (see Water Features table)
Salinity (maximum): Strongly saline (about 25 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 150
Available water capacity: High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LAKE TERRACE (R024XY006OR)

Typical profile
Aknz1—0 to 2 inches; clay loam
Aknz2—2 to 6 inches; clay loam
Bkn1—6 to 17 inches; clay loam
Bkn2—17 to 31 inches; clay loam
Bkn3—31 to 42 inches; clay loam
Bkn4—42 to 54 inches; clay
Bkn5—54 to 64 inches; clay

Characteristics of Playas

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

Flagstaff soils
Percentage of map unit: 5 percent
Landform: Lakebeds

643—Turpin-Kewake-Playas complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,560 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Turpin and similar soils: 50 percent
Kewake and similar soils: 20 percent
Playas: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Turpin

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC TERRACE 6-10 PZ (R024XY014OR)

Typical profile
A—0 to 3 inches; fine sandy loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Characteristics of Kewake

Setting
Landform: Dunes

Properties and qualities
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 5 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 10 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 11
Available water capacity: Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 4 inches; ashy loamy fine sand
C1—4 to 18 inches; ashy loamy fine sand
C2—18 to 25 inches; ashy loamy fine sand
C3—25 to 47 inches; ashy loamy fine sand
C4—47 to 60 inches; ashy loamy fine sand

Characteristics of Playas

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Icene soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Mesman soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Reese soils
Percentage of map unit: 5 percent
Landform: Alluvial flats

644—Turpin-Playas complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,330 to 4,550 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Turpin and similar soils: 65 percent
Playas: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Turpin

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SILTY SODIC TERRACE 6-10 PZ (R024XY121OR)

Typical profile
A—0 to 3 inches; loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Characteristics of Playas

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low

Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Slightly saline (about 4 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Rabbitcreek soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Kewake soils
Percentage of map unit: 5 percent
Landform: Dunes

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

645—Turpin-Playas complex, saline, 0 to 3 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,530 to 4,550 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Turpin, saline, and similar soils: 70 percent
Playas, saline: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Turpin, Saline

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC TERRACE 6-10 PZ (R024XY014OR)

Typical profile
A—0 to 3 inches; loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Characteristics of Playas, Saline

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Strongly saline (about 20 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 50
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Catlow soils
Percentage of map unit: 5 percent
Landform: Old beach terraces, old lake terraces

Flagstaff soils
Percentage of map unit: 5 percent
Landform: Lakebeds

Helphenstein soils
Percentage of map unit: 5 percent
Landform: Lakebeds

646—Turpin-Playas complex, sodic, 0 to 3 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,470 to 4,490 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Turpin, sodic, and similar soils: 50 percent
Playas, sodic: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Turpin, Sodic

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SILTY LOW SODIC TERRACE 6-10 PZ (R024XY120OR)

Typical profile
A—0 to 3 inches; loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Characteristics of Playas, Sodic

Setting
Landform: Playas

Properties and qualities
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): At the surface (see Water Features table)
Salinity (maximum): Strongly saline (about 20 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 50
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 8
Ecological site: Not assigned

Typical profile
C1—0 to 6 inches; stratified clay to silty clay loam
C2—6 to 60 inches; stratified clay to silty clay loam

Dissimilar Minor Components

Rabbitcreek soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

647—Turpin-Rabbitcreek complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,900 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Turpin and similar soils: 60 percent
Rabbitcreek and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Turpin

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC TERRACE 6-10 PZ (R024XY014OR)

Typical profile
A—0 to 3 inches; fine sandy loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Characteristics of Rabbitcreek

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Alluvium over lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 5 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 9
Available water capacity: High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A1—0 to 3 inches; very gravelly loam
A2—3 to 7 inches; loam
Bt—7 to 14 inches; clay loam
Bk—14 to 26 inches; loam
2Bk—26 to 40 inches; extremely paragravelly clay loam
2Ck—40 to 62 inches; extremely paragravelly silt loam

Dissimilar Minor Components

Turpin soils, very fine sandy loam surface
Percentage of map unit: 10 percent
Landform: Lake terraces

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

648—Turpin-Reese complex, 0 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,450 to 4,570 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Turpin and similar soils: 45 percent
Reese and similar soils: 45 percent
Dissimilar minor components: 10 percent

Characteristics of Turpin

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 1 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOW SODIC TERRACE 6-10 PZ (R024XY013OR)

Typical profile
A—0 to 3 inches; sandy clay loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Characteristics of Reese

Setting
Landform: Alluvial flats

Properties and qualities
Parent material: Lacustrine and alluvial deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table (minimum depth): About 12 to 36 inches (see Water Features table)
Salinity (maximum): Strongly saline (about 24 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 350
Available water capacity: Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SODIC MEADOW (R024XY002OR)

Typical profile
An1—0 to 4 inches; very fine sandy loam
2An2—4 to 10 inches; loam

2Bnq—10 to 33 inches; loam
3Bq1—33 to 44 inches; loam
4Bq2—44 to 60 inches; loam

Dissimilar Minor Components

Helphenstein soils, frequently ponded
Percentage of map unit: 5 percent
Landform: Lakebeds

Rabbitcreek soils
Percentage of map unit: 5 percent
Landform: Lake terraces

649—Turpin-Turpin, overblown, complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,380 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Turpin and similar soils: 70 percent
Turpin, overblown, and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Turpin

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY BASIN (R024XY009OR)

Typical profile
A—0 to 3 inches; fine sandy loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Characteristics of Turpin, Overblown

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Eolian and lacustrine deposits derived from mixed volcanic rock
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Strongly saline (about 16 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 200
Available water capacity: Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SODIC DUNES (R024XY005OR)

Typical profile
A—0 to 3 inches; sandy loam
Bn—3 to 18 inches; loam
Cn—18 to 60 inches; clay loam

Dissimilar Minor Components

Salhouse soils
Percentage of map unit: 5 percent
Landform: Stable dunes on beach ridges, sand sheets on lakebeds

Playas
Percentage of map unit: 5 percent
Landform: Playas

650—Vitale very cobbly sandy loam, 5 to 20 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills, mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,790 to 6,030 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Vitale and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Vitale

Setting
Landform: Dissected lava plateaus, hillslopes, mountain slopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, rhyolite, or basalt
Slope range: 5 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 12-16 PZ (R023XY318OR)

Typical profile
A1—0 to 3 inches; very cobbly sandy loam
A2—3 to 14 inches; extremely cobbly loam
Bt—14 to 24 inches; very cobbly clay loam
R—24 to 34 inches; bedrock

Dissimilar Minor Components

Teguro soils
Percentage of map unit: 5 percent
Landform: Hillslopes, lava plateaus

Erakatak soils
Percentage of map unit: 5 percent
Landform: Mountain slopes, hillslopes, lava plateaus

Westbutte soils
Percentage of map unit: 5 percent
Landform: Mountain slopes, hillslopes, lava plateaus

651—Wagontire gravelly clay loam, 2 to 20 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,360 to 5,150 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wagontire and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Wagontire

Setting
Landform: Dissected old alluvial terraces

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 2 to 20 percent
Depth to restrictive feature: 14 to 20 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 10-12 PZ (R023XY214OR)

Typical profile
A—0 to 5 inches; gravelly clay loam
Bt—5 to 15 inches; gravelly clay loam
Bqm—15 to 40 inches; cemented material
Bq—40 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

Ninemile soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Raz soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Brace soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

652—Wanoga gravelly ashy loamy sand, 15 to 30 percent south slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,650 to 5,120 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wanoga, south, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Wanoga, South

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff

Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; gravelly ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Henkle soils
Percentage of map unit: 5 percent
Landform: Volcanic cones

653—Wanoga gravelly ashy loamy sand, 30 to 65 percent south slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,570 to 5,760 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wanoga, south, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Wanoga, South

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Arctostaphylos patula/ Festuca idahoensis-pumice* (CPS217)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; gravelly ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Henkle soils
Percentage of map unit: 5 percent
Landform: Volcanic cones

654—Wanoga-Henkle complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,570 to 5,770 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wanoga and similar soils: 50 percent
Henkle and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Wanoga

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; gravelly ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Characteristics of Henkle

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; extremely cobbly ashy loamy sand
A2—6 to 16 inches; gravelly ashy loam
Bw—16 to 20 inches; extremely bouldery ashy loam
2R—20 to 30 inches; bedrock

Dissimilar Minor Components

Laidlaw soils
Percentage of map unit: 10 percent
Landform: Swales of mountain slopes

Rock outcrop
Percentage of map unit: 5 percent

655—Wanoga-Henkle complex, cool, 0 to 15 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,960 to 5,890 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wanoga and similar soils: 50 percent
Henkle, cool, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Wanoga

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; gravelly ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Characteristics of Henkle, Cool

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/ Acnatherum occidentale-pumice* (CPS213)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; extremely cobbly ashy loamy sand
A2—6 to 16 inches; gravelly ashy loam
Bw—16 to 20 inches; extremely bouldery ashy loam
2R—20 to 30 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Laidlaw soils
Percentage of map unit: 5 percent
Landform: Swales of mountain slopes

656—Wanoga-Henkle complex, dry, 0 to 15 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,500 to 5,700 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wanoga, dry, and similar soils: 50 percent
Henkle, dry, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Wanoga, Dry

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/ Festuca idahoensis* (CPS111)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Characteristics of Henkle, Dry

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/ Festuca idahoensis* (CPS111)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; extremely cobbly ashy loamy sand
A2—6 to 16 inches; gravelly ashy loam
Bw—16 to 20 inches; extremely bouldery ashy loam
2R—20 to 30 inches; bedrock

Dissimilar Minor Components

Laidlaw soils
Percentage of map unit: 10 percent
Landform: Swales of mountain slopes

Rock outcrop
Percentage of map unit: 5 percent

657—Wanoga-Henkle complex, moist, 1 to 15 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,640 to 5,270 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wanoga, moist, and similar soils: 50 percent
Henkle, moist, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Wanoga, Moist

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 1 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PINE-MAHOGANY-FESCUE 16-20 PZ (R021XY411OR)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Characteristics of Henkle, Moist

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PINE-MAHOGANY-FESCUE 16-20 PZ (R021XY411OR)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; extremely cobbly ashy loamy sand
A2—6 to 16 inches; gravelly ashy loam
Bw—16 to 20 inches; extremely bouldery ashy loam
2R—20 to 30 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Laidlaw soils
Percentage of map unit: 5 percent
Landform: Swales of hillslopes

658—Wanoga-Henkle-Rock outcrop complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,500 to 5,700 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wanoga and similar soils: 50 percent
Henkle and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor component: 5 percent

Characteristics of Wanoga

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; gravelly ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Characteristics of Henkle

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; extremely cobbly ashy loamy sand
A2—6 to 16 inches; gravelly ashy loam
Bw—16 to 20 inches; extremely bouldery ashy loam
2R—20 to 30 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 30 percent

Dissimilar Minor Component

Laidlaw soils
Percentage of map unit: 5 percent
Landform: Swales of mountain slopes

659—Wanoga-Henkle-Rock outcrop complex, 30 to 65 percent north slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,390 to 5,830 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wanoga, north, and similar soils: 40 percent
Henkle, north, and similar soils: 30 percent
Rock outcrop: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Wanoga, North

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; gravelly ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Characteristics of Henkle, North

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; extremely cobbly ashy loamy sand
A2—6 to 16 inches; gravelly ashy loam
Bw—16 to 20 inches; extremely bouldery ashy loam
2R—20 to 30 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 30 to 65 percent

Dissimilar Minor Components

Laidlaw soils
Percentage of map unit: 7 percent
Landform: Swales of mountain slopes

Bluesters soils
Percentage of map unit: 3 percent
Landform: Cinder cones

660—Wanoga-Laidlaw gravelly ashy loamy sands, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,600 to 5,170 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wanoga and similar soils: 50 percent
Laidlaw and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Wanoga

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 0 to 3 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; gravelly ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Characteristics of Laidlaw

Setting
Landform: Depressions of lava plateaus

Properties and qualities
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 7.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 5 inches; gravelly ashy loamy sand
A2—5 to 13 inches; ashy loamy sand
AC—13 to 31 inches; ashy loamy coarse sand
2Bw1—31 to 37 inches; cobbly ashy sandy loam
2Bw2—37 to 50 inches; ashy fine sandy loam
2C—50 to 60 inches; ashy loamy fine sand

Dissimilar Minor Components

Henkle soils
Percentage of map unit: 10 percent
Landform: Volcanic cones

Rock outcrop
Percentage of map unit: 5 percent

661—Wanoga-Sisters complex, 3 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,640 to 4,930 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wanoga and similar soils: 50 percent
Sisters and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Wanoga

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 8 inches; gravelly ashy loamy sand
A2—8 to 23 inches; ashy sand
Bw—23 to 29 inches; ashy sandy loam
2R—29 to 39 inches; bedrock

Characteristics of Sisters

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum and colluvium derived from volcanic rock such as basalt
Slope range: 3 to 15 percent
Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 10 inches; paragravelly ashy loamy sand
AC—10 to 17 inches; ashy loamy sand
C—17 to 33 inches; paragravelly ashy sand
2Bwb—33 to 47 inches; clay loam
2R—47 to 51 inches; bedrock

Dissimilar Minor Components

Henkle soils
Percentage of map unit: 8 percent
Landform: Side slopes of lava plateaus

Rock outcrop
Percentage of map unit: 7 percent

663—Wegert ashy loamy fine sand, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 4,480 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wegert and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Wegert

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STIPA FESCUE PLAINS 8-10 PZ (R023XY666OR)

Typical profile
A1—0 to 2 inches; ashy loamy fine sand
A2—2 to 6 inches; ashy loamy sand
Bw—6 to 27 inches; ashy loamy sand
2C—27 to 31 inches; extremely cobbly ashy loamy sand
2R—31 to 41 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

664—Wegert ashy loamy sand, cool, 0 to 1 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,470 to 5,310 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wegert, cool, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Wegert, Cool

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 1 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A1—0 to 2 inches; ashy loamy sand
A2—2 to 6 inches; ashy loamy sand
Bw—6 to 27 inches; ashy loamy sand
2C—27 to 31 inches; extremely cobbly ashy loamy sand
2R—31 to 41 inches; bedrock

Dissimilar Minor Components

Weglike soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Kunceider soils
Percentage of map unit: 5 percent
Landform: Lava plains

Milcan soils
Percentage of map unit: 5 percent
Landform: Lava plains

665—Wegert very cobbly ashy loamy fine sand, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,330 to 4,680 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wegert and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Wegert

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE FLAT 8-10 PZ (R010XA027OR)

Typical profile
A1—0 to 2 inches; very cobbly ashy loamy fine sand
A2—2 to 6 inches; ashy loamy sand
Bw—6 to 27 inches; ashy loamy sand
2C—27 to 31 inches; extremely cobbly ashy loamy sand
2R—31 to 41 inches; bedrock

Dissimilar Minor Components

Weglike soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Borobey soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

666—Wegert-Kunceider complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 4,790 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wegert and similar soils: 60 percent
Kunceider and similar soils: 35 percent
Dissimilar minor component: 5 percent

Characteristics of Wegert

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 1 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A1—0 to 2 inches; gravelly ashy loamy sand
A2—2 to 6 inches; ashy loamy sand
Bw—6 to 27 inches; ashy loamy sand
2C—27 to 31 inches; extremely cobbly ashy loamy sand
2R—31 to 41 inches; bedrock

Characteristics of Kunceider

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A1—0 to 5 inches; cobbly ashy loamy sand
A2—5 to 9 inches; very cobbly ashy loamy sand
2Bw—9 to 14 inches; extremely gravelly ashy sandy loam
2R—14 to 24 inches; bedrock

Dissimilar Minor Component

Rock outcrop
Percentage of map unit: 5 percent

667—Wegert-Kunceider complex, cool, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,330 to 5,030 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wegert, cool, and similar soils: 45 percent
Kunceider, cool, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Wegert, Cool

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile
A1—0 to 2 inches; gravelly ashy loamy sand
A2—2 to 6 inches; ashy loamy sand
Bw—6 to 27 inches; ashy loamy sand
2C—27 to 31 inches; extremely cobbly ashy loamy sand
2R—31 to 41 inches; bedrock

Characteristics of Kunceider, Cool

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)

Typical profile
A1—0 to 5 inches; cobbly ashy loamy sand
A2—5 to 9 inches; very cobbly ashy loamy sand
2Bw—9 to 14 inches; extremely gravelly ashy sandy loam
2R—14 to 24 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 8 percent

Bonnick soils
Percentage of map unit: 7 percent
Landform: Lake terraces

668—Wegert-Kunceider complex, high precipitation, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,350 to 5,260 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wegert, high precipitation, and similar soils: 55 percent
Kunceider, high precipitation, and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Wegert, High Precipitation

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 10-12 PZ (R023XY210OR)

Typical profile
A1—0 to 2 inches; gravelly ashy loamy sand
A2—2 to 6 inches; ashy loamy sand
Bw—6 to 27 inches; ashy loamy sand
2C—27 to 31 inches; extremely cobbly ashy loamy sand
2R—31 to 41 inches; bedrock

Characteristics of Kunceider, High Precipitation

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 10-12 PZ (R023XY210OR)

Typical profile
A1—0 to 5 inches; cobbly ashy loamy sand
A2—5 to 9 inches; very cobbly ashy loamy sand
2Bw—9 to 14 inches; extremely gravelly ashy sandy loam
2R—14 to 24 inches; bedrock

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 8 percent

Wanoga soils
Percentage of map unit: 2 percent
Landform: Lava plateaus

669—Wegert-Morehouse complex, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,500 to 4,580 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wegert and similar soils: 65 percent
Morehouse and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Wegert

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 3 to 5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A1—0 to 2 inches; ashy loamy sand
A2—2 to 6 inches; ashy loamy sand
Bw—6 to 27 inches; ashy loamy sand
2C—27 to 31 inches; extremely cobbly ashy loamy sand
2R—31 to 41 inches; bedrock

Characteristics of Morehouse

Setting
Landform: Dunes on lava plateaus

Properties and qualities
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock
Slope range: 2 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 9 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 8
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: FORESTED SANDY LOAM 8-11 PZ (R006XA212OR)

Typical profile
A—0 to 5 inches; ashy loamy fine sand
AC—5 to 22 inches; ashy loamy sand
C—22 to 41 inches; ashy loamy sand
2Bknb—41 to 60 inches; ashy loam

Dissimilar Minor Components

Lostforest soils
Percentage of map unit: 10 percent
Landform: Structural benches

Sandrock soils
Percentage of map unit: 5 percent
Landform: Structural benches

670—Weglike-Jacksplace complex, 1 to 6 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,340 to 4,600 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Weglike and similar soils: 45 percent
Jacksplace and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Weglike

Setting

Landform: Lava plateaus

Properties and qualities

Parent material: Volcanic ash over residuum derived from volcanic rock such as tuff breccia or basalt
Slope range: 1 to 6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE 8-10 PZ (R023XY514OR)

Typical profile

A—0 to 3 inches; gravelly ashy coarse sandy loam
AB—3 to 12 inches; ashy sandy loam
2Bwb1—12 to 22 inches; gravelly loam
2Bwb2—22 to 23 inches; extremely gravelly loam
2R—23 to 33 inches; bedrock

Characteristics of Jacksplace

Setting

Landform: Lava plateaus

Properties and qualities

Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 6 percent
Depth to restrictive feature: 24 to 32 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: PUMICE PLAINS 8-11 PZ (R023XY607OR)

Typical profile
A1—0 to 4 inches; cobbly ashy loamy sand
A2—4 to 9 inches; cobbly ashy sandy loam
Bt1—9 to 12 inches; very stony ashy sandy loam
Bt2—12 to 20 inches; extremely stony ashy sandy clay loam
C—20 to 26 inches; extremely stony ashy sandy loam
R—26 to 30 inches; bedrock

Dissimilar Minor Components

Hayespring soils
Percentage of map unit: 10 percent
Landform: Lava plateaus

Fort Rock soils
Percentage of map unit: 5 percent
Landform: Lake terraces

671—Weglike-Suckerflat complex, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,300 to 4,690 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Weglike and similar soils: 55 percent
Suckerflat and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Weglike

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over residuum derived from volcanic rock such as tuff breccia or basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 3 inches; ashy loamy sand
AB—3 to 12 inches; ashy sandy loam
2Bwb1—12 to 22 inches; gravelly loam
2Bwb2—22 to 23 inches; extremely gravelly loam
2R—23 to 33 inches; bedrock

Characteristics of Suckerflat

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)

Typical profile
A—0 to 8 inches; ashy loamy sand
Bw—8 to 18 inches; cobbly ashy loam
2R—18 to 28 inches; bedrock

Dissimilar Minor Components

Morehouse soils
Percentage of map unit: 5 percent
Landform: Dunes on lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

672—Westbutte-Lambring-Rock outcrop complex, 35 to 65 percent north slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,570 to 5,600 feet
Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Westbutte, north, and similar soils: 40 percent
Lambring, north, and similar soils: 25 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Westbutte, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 35 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 3 inches; very stony loam
A2—3 to 11 inches; very cobbly loam
Bw—11 to 21 inches; extremely cobbly clay loam
R—21 to 31 inches; bedrock

Characteristics of Lambring, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium derived from volcanic rock such as tuff, andesite, or basalt
Slope range: 35 to 65 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 5 inches; very cobbly loam
A2—5 to 20 inches; very cobbly sandy loam

C—20 to 50 inches; extremely cobbly loamy sand
2R—50 to 60 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 35 to 65 percent

Dissimilar Minor Components

Rubble land
Percentage of map unit: 5 percent

Pearlwise soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Ninemile soils
Percentage of map unit: 5 percent
Landform: Hillslopes, ridges

673—Westbutte-Rock outcrop-Pernty association, 20 to 40 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,490 to 6,100 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Westbutte, north, and similar soils: 35 percent
Rock outcrop: 30 percent
Pernty, south, and similar soils: 25 percent
Dissimilar minor component: 10 percent

Characteristics of Westbutte, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 40 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 3 inches; very stony loam
A2—3 to 11 inches; very cobbly loam
Bw—11 to 21 inches; extremely cobbly clay loam
R—21 to 31 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 40 percent

Characteristics of Pernty, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, basalt, or rhyolite
Slope range: 20 to 40 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 1.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SOUTH SLOPES 12-16 PZ (R023XY302OR)

Typical profile
A—0 to 3 inches; gravelly sandy loam
Bt1—3 to 12 inches; very cobbly clay loam
R—12 to 22 inches; bedrock

Dissimilar Minor Component

Carvix soils
Percentage of map unit: 10 percent
Landform: High stream terraces

674—Widowspring silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,650 to 5,060 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Widowspring and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Widowspring

Setting
Landform: Stream terraces

Properties and qualities
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table (minimum depth): About 36 to 60 inches (see Water Features table)
Available water capacity: High (about 11.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Ecological site: LOAMY BOTTOM (R023XY104OR)

Typical profile
A1—0 to 7 inches; silt loam
A2—7 to 22 inches; silt loam
Bw—22 to 43 inches; silt loam
2C—43 to 63 inches; loam

Dissimilar Minor Components

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

Paulina soils
Percentage of map unit: 5 percent
Landform: Lakebeds

Borobey soils
Percentage of map unit: 5 percent
Landform: Lake terraces

675—Wildcatbutte-Chesebro-Glassbutte complex, 20 to 65 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,640 to 5,760 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wildcatbutte and similar soils: 35 percent
Chesebro and similar soils: 30 percent

Glassbutte and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Wildcatbutte

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 1
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 12-16 PZ (R023XY302OR)

Typical profile
A—0 to 4 inches; gravelly ashy fine sandy loam
Bw—4 to 24 inches; very cobbly ashy loam
Bkq—24 to 60 inches; extremely cobbly ashy sandy loam

Characteristics of Chesebro

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ashflow and colluvium derived from volcanic rock such as rhyodacite or rhyolite
Slope range: 20 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Moderate (about 8.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: NORTH SLOPES 12-16 PZ (R023XY310OR)

Typical profile
A1—0 to 4 inches; very cobbly ashy loam
A2—4 to 24 inches; very stony ashy loam
Bt—24 to 60 inches; very gravelly ashy loam

Characteristics of Glassbutte

Setting
Landform: Mountain slopes

Properties and qualities
Parent material: Volcanic ash and colluvium over residuum derived from volcanic rock such as rhyolite, rhyodacite, or basalt
Slope range: 20 to 65 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Available water capacity: Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SHALLOW NORTH 12-16 PZ (R023XY312OR)

Typical profile
A1—0 to 4 inches; gravelly ashy fine sandy loam
A2—4 to 12 inches; gravelly ashy fine sandy loam
Bt—12 to 23 inches; extremely gravelly ashy sandy clay loam
2Bk—23 to 46 inches; extremely cobbly loamy coarse sand
2Ck—46 to 61 inches; extremely cobbly ashy loamy sand

Dissimilar Minor Components

Rock outcrop
Percentage of map unit: 10 percent

Glencabin soils
Percentage of map unit: 5 percent
Landform: Hillslopes, buttes

676—Wildcatbutte-Glencabin-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,470 to 5,620 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wildcatbutte, south, and similar soils: 50 percent
Glencabin, north, and similar soils: 20 percent

Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Wildcatbutte, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 35 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 1
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE SOUTH 10-12 PZ (R010XA007OR)

Typical profile
A—0 to 4 inches; stony ashy sandy loam
Bw—4 to 24 inches; very cobbly ashy loam
Bkq—24 to 60 inches; extremely cobbly ashy sandy loam

Characteristics of Glencabin, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 15 to 35 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)

Typical profile
A1—0 to 5 inches; cobbly ashy fine sandy loam
A2—5 to 11 inches; cobbly ashy sandy loam
2A3—11 to 25 inches; extremely cobbly ashy loam
2R—25 to 35 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 35 percent

Dissimilar Minor Components

Ludi soils
Percentage of map unit: 10 percent
Landform: Cinder cones

Chesebro soils
Percentage of map unit: 5 percent
Landform: Hillslopes

677—Wildcatbutte-Rock outcrop complex, 15 to 30 percent south slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,310 to 4,810 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wildcatbutte, south, and similar soils: 55 percent
Rock outcrop: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Wildcatbutte, South

Setting
Landform: Dissected lava plateaus

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 1
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: JUNIPER PUMICE SOUTH 10-12 PZ (R010XA007OR)

Typical profile
A—0 to 4 inches; stony ashy sandy loam
Bw—4 to 24 inches; very cobbly ashy loam
Bkq—24 to 60 inches; extremely cobbly ashy sandy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 30 percent

Dissimilar Minor Components

Redcliff soils, south
Percentage of map unit: 10 percent
Landform: Hillslopes

Ludi soils
Percentage of map unit: 5 percent
Landform: Cinder cones

678—Wildcatbutte-Rock outcrop complex, 20 to 50 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,560 to 4,890 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wildcatbutte and similar soils: 70 percent
Rock outcrop: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Wildcatbutte

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 50 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 1
Available water capacity: Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DROUGHTY SOUTH SLOPES 11-13 PZ (R023XY301OR)

Typical profile
A—0 to 4 inches; extremely cobbly ashy loam
Bw—4 to 24 inches; very cobbly ashy loam
Bkq—24 to 60 inches; extremely cobbly ashy sandy loam

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 50 percent

Dissimilar Minor Components

Rabbithills soils
Percentage of map unit: 5 percent
Landform: Fan remnants

Gradon soils
Percentage of map unit: 5 percent
Landform: Fan remnants

679—Wildcatbutte-Suckerflat-Rock outcrop complex, 15 to 40 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,330 to 5,100 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wildcatbutte and similar soils: 50 percent
Suckerflat, south, and similar soils: 25 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Wildcatbutte

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 40 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 1
Available water capacity: Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: ARID NORTH 8-10 PZ (R023XY602OR)

Typical profile
A—0 to 4 inches; cobbly ashy fine sandy loam
Bw—4 to 24 inches; very cobbly ashy loam
Bkq—24 to 60 inches; extremely cobbly ashy sandy loam

Characteristics of Suckerflat, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 15 to 40 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SOUTH SLOPES 10-12 PZ (R023XY300OR)

Typical profile
A—0 to 8 inches; stony ashy sandy loam
Bw—8 to 18 inches; cobbly ashy loam
2R—18 to 28 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 40 percent

Dissimilar Minor Components

Borobey soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Moonbeam soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

680—Winterim very gravelly loam, slump, 2 to 30 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 21—Klamath and Shasta Valleys and Basins
Elevation: 4,860 to 6,610 feet
Mean annual precipitation: 20 to 25 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 30 to 50 days

Map Unit Composition

Winterim and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Winterim

Setting
Landform: Slump blocks on lava plateaus

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as tuff or basalt
Slope range: 2 to 30 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Wyethia mollis* (CPF111)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 6 inches; very gravelly loam
Bt1—6 to 13 inches; gravelly clay loam
Bt2—13 to 22 inches; very gravelly clay
Bt3—22 to 46 inches; very gravelly clay
Cr—46 to 56 inches; bedrock

Dissimilar Minor Components

Nuss soils
Percentage of map unit: 4 percent
Landform: Escarpments

Royst soils
Percentage of map unit: 4 percent
Landform: Lava plateaus

Norcross soils
Percentage of map unit: 4 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 3 percent

681—Wiskan-Rock outcrop complex, 15 to 45 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,440 to 5,320 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Wiskan and similar soils: 70 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Wiskan

Setting
Landform: Escarpments on lava plateaus

Properties and qualities
Parent material: Mixed eolian deposits, colluvium, and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 45 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DROUGHTY SANDY SLOPES 8-11 PZ (R024XY649OR)

Typical profile
A1—0 to 3 inches; very cobbly loamy fine sand
A2—3 to 10 inches; gravelly sandy loam
Bt1—10 to 21 inches; very cobbly clay loam
Bt2—21 to 23 inches; very gravelly loam
R—23 to 33 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 15 to 45 percent

Dissimilar Minor Components

Felcher soils
Percentage of map unit: 10 percent
Landform: Escarpments on lava plateaus

Fitzwater soils
Percentage of map unit: 5 percent
Landform: Hillslopes

682—Xerolls-Rock outcrop complex, 20 to 60 percent north slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,510 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Xerolls, north, and similar soils: 75 percent
Rock outcrop: 25 percent

Characteristics of Xerolls, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash, colluvium, and eolian deposits derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 60 percent
Depth to restrictive feature: 10 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.4 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: NORTH SLOPES 10-12 PZ (R023XY308OR)

Typical profile
A—0 to 7 inches; extremely stony ashy fine sandy loam
Bw—7 to 11 inches; extremely stony ashy fine sandy loam
2R—11 to 21 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 20 to 60 percent

683—Xerolls-Rock outcrop complex, 30 to 65 percent north slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,320 to 5,100 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Xerolls, north, and similar soils: 45 percent
Rock outcrop: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Xerolls, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash, colluvium, and eolian deposits derived from volcanic rock such as basalt or welded tuff
Slope range: 30 to 65 percent
Depth to restrictive feature: 10 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.4 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: PUMICE NORTH SLOPES 10-12 PZ (R023XY613OR)

Typical profile
A—0 to 7 inches; extremely stony ashy fine sandy loam
Bw—7 to 11 inches; extremely stony ashy fine sandy loam
2R—11 to 21 inches; bedrock

Characteristics of Rock Outcrop

Description of areas: Outcroppings of volcanic rock
Slope range: 30 to 65 percent

Dissimilar Minor Components

Rubble land
Percentage of map unit: 10 percent

Felcher soils
Percentage of map unit: 5 percent
Landform: Hillslopes

684—Yankeewell very cobbly sandy loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,380 to 5,720 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Yankeewell and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Yankeewell

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Mixed eolian deposits over residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Depth to restrictive features: 10 to 20 inches to a strongly cemented duripan, 18 to 26 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 20
Available water capacity: Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: HIGH SODIC HILLS 8-11 PZ (R024XY648OR)

Typical profile
A—0 to 3 inches; very cobbly sandy loam
E—3 to 6 inches; gravelly loam
2Btkn—6 to 11 inches; clay loam
2Bkqm—11 to 25 inches; cemented material
2R—25 to 35 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 4 percent

Snakepit soils
Percentage of map unit: 4 percent
Landform: Depressions of lava plateaus

Diablopeak soils
Percentage of map unit: 4 percent
Landform: Hillslopes

Noidee soils
Percentage of map unit: 3 percent
Landform: Lava plateaus, hillslopes

685—Yankeewell-Noidee complex, 2 to 10 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,850 to 6,000 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Yankeewell and similar soils: 45 percent
Noidee and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Yankeewell

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Mixed eolian deposits over residuum derived from volcanic rock such as basalt
Slope range: 2 to 10 percent
Depth to restrictive features: 10 to 20 inches to a strongly cemented duripan, 18 to 26 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 20
Available water capacity: Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: HIGH SODIC HILLS 8-11 PZ (R024XY648OR)

Typical profile
A—0 to 3 inches; very stony loam
E—3 to 6 inches; gravelly loam
2Btkn—6 to 11 inches; clay loam
2Bkqm—11 to 25 inches; cemented material
2R—25 to 35 inches; bedrock

Characteristics of Noidee

Setting
Landform: Lava plateaus, hillslopes

Properties and qualities
Parent material: Mixed eolian deposits and residuum derived from volcanic rock such as basalt
Slope range: 2 to 10 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Moderately saline (about 12 millimhos per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 30
Available water capacity: Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DROUGHTY SODIC HILLS 8-11 PZ (R024XY647OR)

Typical profile
A—0 to 2 inches; extremely stony fine sandy loam
Btn—2 to 5 inches; clay
Btkn—5 to 16 inches; sandy clay loam
R—16 to 26 inches; bedrock

Dissimilar Minor Components

Rubble land
Percentage of map unit: 10 percent

Diablopeak soils
Percentage of map unit: 5 percent
Landform: Hillslopes

686—Yapoah gravelly ashy loamy sand, 15 to 40 percent north slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,620 to 5,650 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Yapoah, north, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Yapoah, North

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as rhyolite or basalt
Slope range: 15 to 40 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata-Arctostaphylos patula/Festuca idahoensis-pumice* (CPS217)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; gravelly ashy loamy sand
A2—6 to 16 inches; gravelly ashy loamy sand
AC—16 to 36 inches; very gravelly ashy loamy sand
C—36 to 61 inches; extremely flaggy ashy loamy sand

Dissimilar Minor Components

Sisters soils
Percentage of map unit: 8 percent
Landform: Hillslopes

Rock outcrop
Percentage of map unit: 5 percent

Krackle family
Percentage of map unit: 2 percent
Landform: Hillslopes

687—Yapoah gravelly ashy loamy sand, 15 to 40 percent south slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,850 to 5,690 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Yapoah, south, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Yapoah, South

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from volcanic rock such as rhyolite or basalt
Slope range: 15 to 40 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A1—1 to 6 inches; gravelly ashy loamy sand
A2—6 to 16 inches; gravelly ashy loamy sand
AC—16 to 36 inches; very gravelly ashy loamy sand
C—36 to 61 inches; extremely flaggy ashy loamy sand

Dissimilar Minor Components

Sisters soils
Percentage of map unit: 8 percent
Landform: Hillslopes

Rock outcrop
Percentage of map unit: 5 percent

Krackle family
Percentage of map unit: 2 percent
Landform: Hillslopes

688—Youtlkue ashy silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,280 to 4,340 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Youtlkue and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Youtlkue

Setting
Landform: Depressions of lakebeds

Properties and qualities
Parent material: Lacustrine deposits derived from volcanic ash and diatomaceous earth
Slope range: 0 to 2 percent
Depth to restrictive feature: 20 to 35 inches to paralithic bedrock

Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): About 10 to 30 inches (see Water Features table)
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 2
Available water capacity: Moderate (about 7.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: LAKE TERRACE (R024XY006OR)

Typical profile
A—0 to 5 inches; ashy silt loam
Bw—5 to 22 inches; ashy silty clay loam
2C—22 to 32 inches; very paragravelly ashy silt loam
2Cr—32 to 42 inches; bedrock

Dissimilar Minor Components

Tonor soils
Percentage of map unit: 10 percent
Landform: Lakebeds

Horning soils
Percentage of map unit: 5 percent
Landform: Stable dunes on lake terraces

689—Zorravista fine sand, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,400 to 4,540 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Zorravista and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Zorravista

Setting
Landform: Semi-stablized dunes, sand sheets

Properties and qualities
Parent material: Eolian deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Land capability subclass (irrigated): 4s
Ecological site: SANDY 6-10 PZ (R024XY012OR)

Typical profile
A—0 to 4 inches; fine sand
C—4 to 60 inches; loamy fine sand

Dissimilar Minor Components

Hinton soils
Percentage of map unit: 5 percent
Landform: Lake terraces

Calderwood soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

690—Zorravista-Hinton complex, 0 to 8 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 4,390 to 4,400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Map Unit Composition

Zorravista and similar soils: 50 percent
Hinton and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Zorravista

Setting
Landform: Semi-stablized dunes, sand sheets

Properties and qualities
Parent material: Eolian deposits derived from mixed volcanic rock
Slope range: 2 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Land capability subclass (irrigated): 4s
Ecological site: SANDY 6-10 PZ (R024XY012OR)

Typical profile
A—0 to 4 inches; fine sand
C—4 to 60 inches; loamy fine sand

Characteristics of Hinton

Setting
Landform: Lake terraces

Properties and qualities
Parent material: Eolian sand over lacustrine beach deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Depth to restrictive feature: 16 to 26 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Land capability subclass (irrigated): 4s
Ecological site: LOAMY 8-10 PZ (R024XY016OR)

Typical profile
A1—0 to 1 inch; gravelly loamy sand
A2—1 to 12 inches; sandy loam
2Bkq—12 to 18 inches; gravelly loam
3C—18 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

Enko soils
Percentage of map unit: 5 percent
Landform: Swales, fan piedmonts

Calderwood soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Brabble soils
Percentage of map unit: 5 percent
Landform: Hillslopes

691—Lithic Haploxerolls-Lava flows complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 23—Malheur High Plateau

Elevation: 4,380 to 4,820 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Lithic Haploxerolls and similar soils: 70 percent
Lava flows: 25 percent
Dissimilar minor component: 5 percent

Characteristics of Lithic Haploxerolls

Setting
Landform: Lava plateaus adjacent to lake plains

Properties and qualities
Parent material: Mixed eolian deposits, volcanic ash, and colluvium derived from volcanic rock such as basalt, tuff, or rhyolite
Slope range: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Very low (about 0.4 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: JUNIPER LAVALANDS 8-11 PZ (R021XY424OR)

Typical profile
A—0 to 2 inches; extremely stony ashy fine sandy loam
Bw—2 to 11 inches; extremely stony ashy fine sandy loam
2R—11 to 21 inches; bedrock

Characteristics of Lava flows

Description of areas: Lateral hardened rock consisting of cooled molten lava
Slope range: 2 to 15 percent

Dissimilar Minor Component

Rubble land
Percentage of map unit: 5 percent

692—Steiger ashy loamy coarse sand, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,630 to 5,250 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Steiger and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Steiger

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice* (CPS212)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; ashy loamy coarse sand
Bw—4 to 12 inches; paragravelly ashy loamy coarse sand
C—12 to 45 inches; ashy coarse sand
2Bwb—45 to 60 inches; stony sandy loam

Dissimilar Minor Components

Wanoga soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Henkle soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Laidlaw soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

693—Steiger ashy loamy coarse sand, high elevation, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,860 to 5,370 feet
Mean annual precipitation: 15 to 25 inches

Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Steiger, high elevation, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Steiger, High Elevation

Setting
Landform: Hillslopes

Properties and qualities
Parent material: Volcanic ash and pumice over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice* (CWS112)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; ashy loamy coarse sand
Bw—4 to 12 inches; paragravelly ashy loamy coarse sand
C—12 to 45 inches; ashy coarse sand
2Bwb—45 to 60 inches; stony sandy loam

Dissimilar Minor Components

Wanoga soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Henkle soils
Percentage of map unit: 5 percent
Landform: Hillslopes

Laidlaw soils
Percentage of map unit: 5 percent
Landform: Swales of hillslopes

694—Steiger ashy loamy coarse sand, low landscape position, 0 to 3 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope

Elevation: 4,560 to 5,140 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Steiger, low landscape position, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Steiger, Low Landscape Position

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash and pumice over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Not assigned
Plant community class: *Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; ashy loamy coarse sand
Bw—4 to 12 inches; paragravelly ashy loamy coarse sand
C—12 to 45 inches; ashy coarse sand
2Bwb—45 to 60 inches; stony sandy loam

Dissimilar Minor Components

Wanoga soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Henkle soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Laidlaw soils
Percentage of map unit: 5 percent
Landform: Depressions of lava plateaus

695—Ninemile gravelly loam, hummocky, 0 to 8 percent slopes

Map Unit Setting

General landscape: Lava plateaus, hills
Major land resource area (MLRA): 23—Malheur High Plateau
Elevation: 5,100 to 5,430 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Map Unit Composition

Ninemile, hummocky, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ninemile, Hummocky

Setting
Landform: Ridges, lava plateaus, hillslopes

Properties and qualities
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 0 to 8 percent
Depth to restrictive feature: 17 to 19 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: CLAYPAN 12-16 PZ (R023XY216OR)

Typical profile
A—0 to 2 inches; gravelly loam
Bt—2 to 17 inches; cobbly clay
R—17 to 27 inches; bedrock

Dissimilar Minor Components

Carryback soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Embal soils
Percentage of map unit: 5 percent
Landform: Ephemeral stream terraces

Erakatak soils
Percentage of map unit: 5 percent
Landform: Lava plateaus, hillslopes

696—Shanahan ashy loamy coarse sand, 0 to 15 percent slopes

Map Unit Setting

General landscape: Lava plateaus
Major land resource area (MLRA): 6—Cascade Mountains, Eastern Slope
Elevation: 4,610 to 4,930 feet
Mean annual precipitation: 15 to 35 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Map Unit Composition

Shanahan and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Shanahan

Setting
Landform: Lava plateaus

Properties and qualities
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Available water capacity: Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: Not assigned
Plant community class: *Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)

Typical profile
A1—0 to 4 inches; ashy loamy coarse sand
A2—4 to 9 inches; paragravelly ashy loamy coarse sand
C—9 to 38 inches; ashy coarse sand
2Bwb—38 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

Shukash soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Steiger soils
Percentage of map unit: 5 percent
Landform: Lava plateaus

Rock outcrop
Percentage of map unit: 5 percent

888—Denied access

This map unit consists of areas where the landowner denied access to the land for the purpose of soil mapping.

999—Water

This map unit consists of lakes and reservoirs. Depressions that contain water are shown on the maps for this publication as Water. The extent or presence of these areas can fluctuate greatly from year to year. During periods of high precipitation or runoff from snowmelt, the areas of Water increase. During periods of drought, the areas of Water decrease. In any given year, the areas of Water shown on the maps may appear as soil. Conversely, areas of soil or Playas adjacent to areas of Water may be under water or appear as areas of Water.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of the soils in this survey area is given in the section "Detailed Soil Map Units" and in table 5.

Prime Farmland

In an effort to identify the extent and location of important farmland, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 8 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

For the map units identified as prime farmland in the list in this section, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, may be needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

The following map units are considered prime farmland if irrigated. This list, however, does not constitute a recommendation for a particular land use.

290	Enko sandy loam, 0 to 6 percent slopes
291	Enko loam, 1 to 10 percent slopes
292	Enko loamy sand, 2 to 8 percent slopes
294	Enko-McConnel complex, 0 to 5 percent slopes
410	Legler clay loam, 0 to 2 percent slopes
434	McConnel cobbly sandy loam, 3 to 8 percent slopes

436	McConnel very gravelly sandy loam, 0 to 2 percent slopes
437	McConnel very gravelly sandy loam, 2 to 15 percent slopes
476	Morfitt loam, 0 to 2 percent slopes
689	Zorravista fine sand, 0 to 5 percent slopes
690	Zorravista-Hinton complex, 0 to 8 percent slopes

Rangeland and Forestland

In areas that have similar climate and topography, differences in the kind and amount of rangeland or forestland vegetation are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

The relationship between the soils and vegetation was established during this survey. Each detailed soil map unit component has been correlated to a Natural Resources Conservation Service rangeland ecological site or a Forest Service forestland plant association, which are given in the section "Detailed Soil Map Units" and in table 6. A rangeland ecological site or forestland plant association is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation. It is the product of all environmental factors responsible for its development—soils, climate, landscape position, time, and living organisms. Each ecological site or plant association is recognized and described on the basis of the characteristics that differentiate it from other sites in its ability to produce and support a characteristic plant community.

Table 6 shows, for each soil that supports rangeland or forestland vegetation, the ecological site or plant association; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. An explanation of the column headings in the table follows.

An *ecological site or plant association* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on a site is typified by an association of species that differs from that of other sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service. Descriptions of plant associations are provided in "Plant Associations of the Central Oregon Pumice Zone" (USDA, 1985).

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Characteristic vegetation (the grasses, forbs, shrubs, and trees that make up most of the rangeland historic climax plant community or the forestland potential natural plant community on each soil) is listed by common name. Under *forest or range composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The species composition for the forested soils is given as canopy cover, and the species composition for the rangeland soils is given as air-dry weight. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Rangeland

Prepared by Alan V. Bahn, rangeland management specialist, Natural Resources Conservation Service, and Charlie D. Tackman, natural resource specialist, Bureau of Land Management.

The rangeland in the survey area transitions from the Basin and Range physiographic province in the southern part to the High Cascades in the western part to the High Desert in the northern part. The survey area is bordered by Harney County to the east, Deschutes County to the north, Klamath County to the northwest, Fremont National Forest to the southwest, and the southern part of Lake County to the south. More than 90 percent of the survey area consists of rangeland. The rangeland is in a variety of climatic regimes, ranging from warm, low-elevation lake basins and valleys to high-elevation plateaus and fault-block hills and mountains. A large area in the northern and northwestern parts of the survey area is heavily influenced by volcanic ash and pumice, which has resulted in unique plant associations and ecological sites. Seasonal livestock and wildlife use patterns reflect the variability of the rangeland. The warm lake basins and bottomlands provide excellent forage in winter and spring, and the high plateaus, hills, and mountains provide quality forage in summer. The inherent productivity of the lower elevation, moist flood plains and meadows is especially high. In addition, the dominance of volcanic ash and pumice in the lower elevation to mid-elevation areas enhances productivity.

The vegetation produced on rangeland and other land types helps to control erosion, conserve water, and maintain watersheds; provides habitat for wildlife; and provides scenic and recreational value. Rangeland is an integral part of healthy watersheds. Rangeland plants protect and stabilize soils during runoff. They contribute to soil structure and improve the soil water intake rate. Clean water slowly released from uplands over an extended period of time, recharged aquifers, and riparian areas in excellent condition are indicators of healthy rangeland.

Historical use of the rangeland in the survey area has been extensive and varied. Northern Great Basin and Plateau cultures have inhabited the area from the end of the last cold glacial period through the transition to the present warm period. Native people such as the Northern Paiute, Klamath, and Modoc lived a nomadic hunting and gathering lifestyle. The annual cycle of movement was based on the correct timing for hunting and gathering various species. A seasonal cycle could include mountain root camps in spring; salmon fishing and camas, seed, and berry gathering in summer; and hunting in fall. The natural setting to which Oregon’s Great Basin people were adapted was a rich one. It was extreme and demanding yet generous to those who knew it well.

Domestic livestock, including cattle and sheep, have grazed in the survey area since the late 1800’s. Major cattle ranching operations were established prior to and during the homestead era. Migrant sheep operations were also a major part of the ranching history. Large flocks were pastured throughout the year, progressing from the lower elevation mixed desert shrub sites in winter and early in spring to the higher elevation pastures in summer. Livestock numbers were highest in the early 1900’s. The impact of the ranches on the rangeland became apparent with areas of severe overgrazing. Subsequently, management systems were applied and legislation was enacted to protect the rangeland.

Wildlife use patterns and numbers on rangeland have varied considerably. Before 1900, wildlife numbers were low. Improved wildlife management since that time has resulted in an increase in the number and diversity of wildlife. Improved livestock management practices, seedings, water developments, and prescribed grazing systems have had a favorable impact on wildlife populations.

Rangeland Plant Community Dynamics

Primary plant succession occurs as the historical development of an ecological site takes place. Plant succession is the progressive replacement of plant communities on an ecological site that leads to a climax or characteristic plant community. Succession occurs over time and is a result of environmental factors, including natural disturbances. Retrogression is the degradation or shift away from the historic plant community and is a reflection of changes in site conditions. Commonly, site condition changes are irreversible and a different vegetative state develops. This state may be relatively stable and resistant to change, such as low-quality annual range, or it may be a high-quality range seeding.

Range similarity index is a rating used to evaluate an ecological site. It is based on the comparison of the present plant community to either the historic climax plant community or another vegetative state community. The similarity index is the percentage of a specific vegetative state plant community that is presently on the site. It provides an indication of the extent of change needed to establish the desired or historic climax plant community.

Range trend is the direction of the change on a site. The plant community may be either moving toward or away from the historic climax plant community or the desired plant community. This trend provides information needed to ensure that the direction of change will enhance the site and meet the objectives of the manager. As a monitoring guideline it can be used to evaluate the success of a prescribed grazing system and to determine needed refinements.

Further information about the range similarity index and rangeland trend is available in chapter 4 of the “National Range and Pasture Handbook” (http://www.nrcs.usda.gov/technical).

Prescribed Grazing Systems

Prescribed grazing is the management of livestock and other browsing animals to achieve specific objectives. It is based on landowner objectives, resource capabilities, and conservation needs. It is used to maintain or improve the health and vigor of selected plants; maintain a stable and desired plant community; provide food, cover, and shelter for livestock and wildlife; improve water quality and quantity; ensure a healthy sustainable soil condition; and promote economic stability.

The major considerations in planning and implementing a prescribed grazing system are limitations in site production and the sensitivity of the key species. A key species is one that serves as a guide to plant community use, health, and trend. It is a palatable species that furnishes excellent forage and at site potential makes up a high percentage of the plant community. Thurber needlegrass and bluebunch wheatgrass are excellent examples of key species in lower lying 8- to 12-inch precipitation zones, and Idaho fescue is an example of a key species in higher lying 12- to 16-inch precipitation zones. Bud sagebrush is an example of a desert shrub key species, and antelope bitterbrush is an example of an excellent shrub key species.

The frequency of defoliation and season of grazing are based on the growth rate, physiological stage of growth, and planned response of key species. It is important to determine whether the key species has adequate vigor and stand density, whether deferment is needed to increase vigor and seed production, and the proper frequency of deferment and effects of rotations. These are basic in determining the response time of key species.

Grazing management practices are used to achieve plant community objectives. Practices include deferment, rest, rotation, proper season of use, proper length of use, and planned use levels. The timing and length of the period of grazing, level of forage use, and use of resting or deferred grazing until after critical periods of plant growth affect plant responses. The effectiveness and acceleration of upward trends are achieved through repeated deferment and use of other high-response management practices. Desired results are achieved by applying these practices in a well-thought-out sequence and monitoring them over a period of years.

Facilitating practices are used to augment management practices. Accelerated upward trends, improved livestock distribution, and increased production can be achieved with these practices. Foremost of the facilitating improvement practices are water development and cross fencing. Both of these practices help to improve rotations and livestock distribution. Accelerating practices include juniper control and seeding areas in poor condition where desired perennial bunchgrasses are absent. These practices increase production and lengthen the green forage period. Weed control is imperative for optimum sustained production. In areas of grazeable forestland, thinning benefits both the forage and forest resources.

Livestock management involves many range practices. The key to proper management is a grazing system designed to consider plant and animal requirements, topography, and management objectives. Objectives are based on the maintenance or improvement of soil, water, and vegetative resources. If the management objective precludes a higher range site similarity index or site potential because of economic considerations or other considerations, resource maintenance at a sustainable level is imperative. An even or upward trend is required. The level of management should be consistent with the limitations of the vegetative site. At a minimum it should protect the soil and plant resource base, provide for water conservation, and promote improved water quality.

Wildlife extensively use areas of rangeland and forestland for food and cover. The survey area has an excellent balance of seasonal habitat. The higher lying plateaus, meadows, hills, and mountains provide excellent habitat in summer, and the lower lying plateaus and basins provide excellent habitat in winter. Forage late in summer and in fall is most limited on the extensive plateaus because of the droughtiness in summer, limited nutritional quality of feed, and lack of perennial water.

Bud sagebrush, spiny hopsage, antelope bitterbrush, and other palatable shrubs are excellent indicators of the range condition for game. Because these shrubs provide food and cover for many wildlife species, they are subject to overgrazing in areas of critical winter and spring range. Heavy use indicators include complete use of annual twig growth, presence of decadent plants, lack of young shrubs, old uniform-aged stands, and “lollypop” growth on taller shrubs with no basal stem reproduction. Balancing wildlife numbers with habitat capabilities is critical. With the proper level of use, stands of healthy shrubs of varying ages will result.

The habitat and feed requirements for wildlife species are seasonal. Big sagebrush provides important feed and cover in winter to antelope, mule deer, sage grouse, and other species. Mountain sagebrush and Wyoming big sagebrush are preferred forage subspecies. Wyoming big sagebrush provides nearly 100 percent of the food for sage grouse in winter. Nesting cover for sage grouse and other wildlife species is provided by areas that support sagebrush and have about 20 percent or more herbaceous cover.

Understanding the nutritional requirements and patterns of use of individual wildlife species is important. Emergent forbs that are high in content of protein are needed early in spring for good hatches of sage grouse and early development of the chicks. In areas where western juniper has encroached, use by sage grouse will decrease while use by other wildlife species may increase.

Riparian areas provide important and diverse wildlife habitat. Perennial riparian areas are or have the potential to become dominated by shrubs. Healthy riparian areas have vigorous complex communities of shrubs, forbs, grasses, and grasslike plants. They provide a buffer during periods of high flows and a connection to the flood plain and contribute to the quality of good instream aquatic habitat. The potential for improvement of riparian habitat is excellent with proper management of existing riparian vegetation and with seeding and planting to adapted native and introduced species. Riparian vegetative recovery time is relatively short because of the presence of a perennial or shallow water table. In areas of severe channel alteration and degradation, longer periods of time and additional effort is required to improve riparian areas. Recovery time is dependent on the severity of the channel alteration and degradation.

Management Limitations for Use as Rangeland

Rangeland is fragile by nature because of the limitations in climate, topography, and soil characteristics. Important limitations that affect grazing management are given in the following paragraphs. Each of these limitations alone or in combination can make an area unsuitable or less suitable for a particular grazing practice.

Aspect

Aspect is the direction in which a slope faces. The soils on north-facing slopes are cooler, deeper, and more productive for a given precipitation range than are those on south-facing slopes. Depending on elevation, north-facing slopes generally are well suited to grazing by livestock and wildlife late in spring and in summer. South-facing slopes provide excellent range in spring, but they are poorly suited to livestock grazing in summer. South-facing slopes are very important to big game in winter because less snow accumulates on these slopes and they are the first to green up in spring. Southeast- and west-facing slopes have vegetative site characteristics similar to those of south-facing slopes.

Slope

The steepness of slope affects livestock use and the feasibility of applying improvement practices. Slopes of 30 percent or less are most preferred by livestock. Areas that have slopes of more than about 50 percent receive very little use even if forage is abundant. Limited livestock use on steep slopes normally is anticipated, and stocking rates are adjusted accordingly. Use of ground equipment is impractical on slopes of more than 30 percent.

Effect of droughtiness or cold temperatures

Droughtiness in soils reduces the production of forage and limits the choice of species for reseeding. Soils are droughty as a result of low annual precipitation or low available water capacity. Soil characteristics such as coarse texture, shallow depth, or a high content of rock fragments reduce the available water capacity of a soil. Conversely, soils high in content of volcanic ash and pumice have a higher available water capacity and more available moisture for plant growth. Cold temperatures limit the length of the growing season for plants, suppress plant growth, and delay plant development.

Surface stones and cobbles

The amount of stones and cobbles on the soil surface can influence both grazing management and the potential for revegetation. Some soils have so many stones and cobbles on the surface that livestock avoid them whenever possible. The amount of stones on the soil surface also limits the feasibility of mechanical seedbed preparation and seeding.

Surface texture

Certain soil surface textures limit use. Soils that have a sandy surface texture are subject to a high risk of wind erosion. Grazing on these soils should occur late in fall, in winter, and early in spring when the soils are moist and the risk of wind erosion is lowest. Soils that have a silty surface texture and a low content of organic matter are subject to crusting. The formation of a vesicular crust limits infiltration and seedling emergence. Soils that have a clayey surface texture have a very slow infiltration rate and very slow permeability. In a cold environment, silty and clayey soils are subject to frost heaving. Vegetation is subject to trampling and crown damage if it is grazed when the soils are wet in winter and spring.

High water table

Some soils have a seasonal or year-round high water table. Wetness in soils, even if saturated within the root zone for a brief period, impacts the composition and production of vegetation. This is readily apparent in soils that are ponded or have a high water table at or near the surface. Under these conditions, grazing can result in compaction and displacement of the soils and in crown damage to plants. Wet soils are seasonally restricted for mechanical site preparation and are subject to erosion from concentrated flows. Seeding techniques need to be tailored to site conditions, and the species selected must be tolerant of seasonal wetness.

Rock outcrop and escarpments

Areas of Rock outcrop and escarpments occur throughout the survey area. They occur most typically on steep south-, east-, and west-facing slopes. They commonly are formed as a result of geologic faults, glacial action, or exposed sedimentary and igneous rock. Areas of Rock outcrop and escarpments can be several hundred feet in length and 10 to several hundred feet in height. They act as physical barriers to domestic livestock and many species of wildlife by preventing or restricting movement. Some wildlife species prefer habitat associated with areas of Rock outcrop and escarpments. Raptors and bighorn sheep, for example, make good use of these areas.

Loss of site potential

Some of the soils in the survey area have lost a significant amount of the surface layer through wind or water erosion. The loss of this layer can cause major changes in the composition of the plant community. This irreversible change in the plant community is most evident in shallow soils and soils that have a claypan, where the topsoil is thin and the underlying subsoil has slow permeability and is restrictive to root growth. Depending on the extent of the erosion, losses in total production can range from 25 to 50 percent or more.

Restrictions to water developments

Livestock water developments are needed in most of the grazed areas in the survey area. Spring developments and wells can provide excellent high-quality water in a timely manner. Stock ponds are more limited in terms of quality and seasonal use. They require a careful feasibility study. To prevent a loss of water from the subsoil, stock ponds should be used only on soils that have slow permeability. Soils that are coarse grained, high in content of rock fragments, or shallow to bedrock are poorly suited to pond construction. Because adequate runoff is needed to fill stock ponds, the infrequent periods of runoff typical of areas of low precipitation commonly preclude pond construction in these areas.

Forestland

By Craig M. Ziegler and Russ Hatz, foresters, Natural Resources Conservation Service.

Forestland comprises less than 10 percent of the survey area. It is concentrated in the northern and northwestern parts of the area. A majority of the forestland is public land that is administered by the Forest Service. The remainder is owned by commercial timber companies and private landowners.

The forests in the northern part of the survey area are on plateaus, hills, and mountains at an elevation of about 4,600 to 6,000 feet or more. The mean annual precipitation is about 15 to 35 inches, and the mean annual air temperature is 40 to

44 degrees F. The soils are influenced by volcanic ash and pumice. They are cold and low in fertility. They have a high available water capacity, but they dry out very quickly early in the growing season. Two main forest cover types are in this part of the survey area—interior ponderosa pine and lodgepole pine (Society of American Foresters, 1980). The interior ponderosa pine type is on lava plateaus, hillslopes, and mountain slopes. Many years of fire control have allowed lodgepole pine to become established in the understory. Areas of Lapine, Shanahan, Shukash, and Steiger soils support this forest cover type. The lodgepole pine type is on lava plateaus, hillslopes, and mountain slopes, dominantly in low-lying or concave areas. Cold air drainage is trapped in these areas, and the resulting frost is detrimental to ponderosa pine. Areas of Lapine, Shanahan, and Steiger soils support this forest cover type.

The forests in the northwestern part of the survey area are more diverse. They are on plateaus, hills, and mountains at an elevation of about 4,300 to 5,900 feet. The mean annual precipitation is about 12 to 20 inches, and the mean annual air temperature is 43 to 45 degrees F. The dominant forest cover type is interior ponderosa pine. Ponderosa pine is the dominant tree species, but white fir, lodgepole pine, and western juniper occur in lesser amounts. Western juniper generally is at the lower elevations, white fir at the middle elevations, and lodgepole pine at the higher elevations. The soils in the northwestern part also have been influenced by volcanic activity. The layers of pumice and ash are a few inches thick to more than 60 inches thick. The proximity of the soils to various volcanic events and the direction and velocity of the wind influence the thickness of the pumice and ash. The soils in this part of the survey area have moderate fertility and high available water capacity.

Several large wood products manufacturers are near the survey area. Ponderosa pine, the most prevalent tree species, and white fir are used for lumber, plywood, and wood chips. Lodgepole pine is used for wood chips, plywood, and fence posts. Dead lodgepole pine is used extensively for firewood.

Many diseases and insects affect the forests and can be a problem in individual stands of trees. Damage varies from year to year. The mountain pine beetle (*Dendroctonus ponderosae*) is very destructive to forests. Large numbers of lodgepole pine, the principal host, periodically are killed, and individual trees are killed annually. The pine engraver beetle also attacks pine species. The western spruce budworm (*Choristoneura occidentalis*) defoliates white fir, dramatically reducing growth. The western pine beetle (*Dendroctonus brevicomis*) attacks larger pine trees, and the western pine shoot borer (*Eucosma sonomia*) attacks younger pine trees. Dwarf mistletoe (*Arceuthobium spp.*) is one of the most destructive parasites that attacks ponderosa pine and western larch. Red ring rot (*Fomes pini*) is a disease that kills western larch and lodgepole pine. Shoestring root rot (*Armillaria mellea*) is a problem for pines under stress and for true firs. Brown stringy rot (*Echinodontium tinctorium*) is a serious disease that affects true firs.

Soil surveys are important to forestland managers as they seek ways to increase the productivity of the forestland. Certain soils respond better to fertilization, some are susceptible to landslides and erosion after roadbuilding and harvesting, and others require special efforts to harvest and reforest (USDA, National Forestry Manual).

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables 7 through 11. They include engineering soil properties, physical and chemical properties, and pertinent soil and water features.

Engineering Soil Properties

Table 7 gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index generally are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone generally is omitted in the table.

Physical Soil Properties

Table 8 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^{1}/_{3}$- or $^{1}/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ability of a soil to transmit water or air. The estimates in the table indicate the rate of water movement, in micrometers per second, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the “National Soil Survey Handbook,” which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Soil Properties

Table 9 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity (CEC) is the total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams. It commonly is measured at neutral pH of 7.0 (CEC-7), but it may be measured at some other stated pH value. Soils that have a low CEC hold fewer cations and may require more frequent applications of fertilizer than those that have a high CEC. The ability to retain cations minimizes the risk of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 10 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *brief* if less than 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *brief* if less than 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 11 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. The classification of the soils in the survey area are given in table 12. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Xeroll (*Xer*, meaning dry, plus *oll*, from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Argixerolls (*Argi*, meaning white clay, plus *xeroll*, the suborder of the Mollisols that has a xeric moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Argixerolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is clayey-skeletal, smectitic, frigid Typic Argixerolls.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the taxonomic unit in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993) and in the “Field Book for Describing and Sampling Soils” (Schoeneberger and others, 2002). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1999) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 2003). Following the pedon description is the range of important characteristics of the soils in the taxonomic unit.

Also included are characteristics that describe the rationale used when a taxadjunct to a series is recognized or when a range that is outside the range of the soil series is allowed. The following soils are recognized only as minor components in the survey area—Chewaucan, Kerrfield, Lonely, Skedaddle, Krackle family, Paulina family, and Widowspring family. The origin of the pedon data for these soils is from an adjacent soil survey area in which the soil was a major component.

Abert Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Lakebeds
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 2 percent
Elevation: 4,280 to 4,820 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Sodic Xeric Haplocambids

Typical Pedon

Abert ashy loamy sand, 0 to 2 percent slopes, in an area of rangeland, in map unit 200; Lake County, Oregon; in Fort Rock Valley about 1,500 feet north and 200 feet east of the southwest corner of section 24, T. 26 S, R. 16 E; U.S. Geological Survey Lane Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 17 minutes, 56 seconds north and longitude 120 degrees, 46 minutes, 39 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; grayish brown (10YR 5/2) ashy loamy sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine interstitial pores; 40 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized (0.25 to 2.00 millimeters), pumiceous ash grains; neutral (pH 7.0); clear smooth boundary.

Bw1—2 to 8 inches; light brownish gray (10YR 6/2) ashy sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few fine tubular pores; 40 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized (0.25 to 2.00 millimeters), pumiceous ash grains; neutral (pH 7.2); clear smooth boundary.

2Bw2—8 to 13 inches; pale brown (10YR 6/3) ashy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots; few very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

2Bkn1—13 to 17 inches; brown (10YR 5/3) ashy silt loam, dark brown (10YR 3/3) moist; strong fine subangular blocky structure; very hard, very firm, slightly sticky and nonplastic; few very fine and fine roots; few very fine tubular pores; secondary carbonates segregated in many irregularly shaped fine masses; violently effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

2Bkn2—17 to 25 inches; light gray (10YR 7/2) ashy silt loam, brown (10YR 5/3) moist; moderate fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; few fine tubular pores; secondary carbonates segregated as finely disseminated crystals in matrix; violently effervescent; very strongly alkaline (pH 9.3); clear smooth boundary.

2Bknz—25 to 35 inches; light gray (10YR 7/2) ashy silt loam, brown (10YR 5/3) moist; moderate fine and medium subangular blocky structure; hard, firm, nonsticky and nonplastic; few very fine and fine roots; few very fine tubular pores; secondary carbonates segregated as finely disseminated crystals in matrix; slightly effervescent; soluble sodium salts wick to side of soil profile; very strongly alkaline (pH 9.1); clear smooth boundary.

3C—35 to 60 inches; pale brown (10YR 6/3) gravelly ashy loamy sand, brown (10YR 4/3) moist; massive; extremely hard, very firm, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; 30 percent gravel; strongly effervescent; very strongly alkaline (pH 9.2).

Range in Characteristics

Depth to bedrock: More than 60 inches
Clay content in particle-size control section: 18 to 30 percent
Depth to secondary carbonates: 12 to 20 inches
Other features: Rock fragments on soil surface and in upper horizons, where present, are fine gravel (2 to 5 millimeters).

A horizon
Value—5 or 6 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand
Clay content—4 to 7 percent
Rock fragment content—0 to 10 percent fine gravel
Volcanic glass content—30 to 70 percent in coarse silt to fine sand fractions and 30 to 50 percent in medium to very coarse sand fractions
Organic matter content—0.2 to 1.0 percent
Reaction—neutral or slightly alkaline

Bw1 horizon
Value—5 or 6 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand or ashy sandy loam
Clay content—5 to 15 percent
Rock fragment content—0 to 5 percent fine gravel
Volcanic glass content—30 to 70 percent in coarse silt to fine sand fractions and 30 to 50 percent in medium to very coarse sand fractions
Reaction—neutral or slightly alkaline

2Bw2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy loam or ashy sandy loam

Clay content—10 to 20 percent
Rock fragment content—0 to 5 percent fine gravel
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 1
Calcium carbonate equivalent—0 to 2 percent

2Bkn horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—ashy loam, ashy silt loam, or ashy silty clay loam
Clay content—18 to 30 percent
Rock fragment content—0 to 10 percent fine gravel
Reaction—strongly alkaline or very strongly alkaline
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—30 to 90
Calcium carbonate equivalent—5 to 10 percent

2Bknz horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—ashy loam, ashy silt loam, or ashy silty clay loam
Clay content—18 to 30 percent
Rock fragment content—0 to 10 percent fine gravel
Reaction—strongly alkaline or very strongly alkaline
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—90 to 170
Calcium carbonate equivalent—2 to 5 percent

3C horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—ashy sandy loam, ashy loam, or gravelly ashy loamy sand
Clay content—5 to 20 percent
Rock fragment content—0 to 35 percent gravel
Reaction—strongly alkaline or very strongly alkaline
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—70 to 150
Calcium carbonate equivalent—2 to 5 percent

Actem Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Old alluvium and colluvium derived from volcanic rock such as basalt, rhyolite, tuff, or andesite
Slope range: 2 to 20 percent
Elevation: 4,910 to 5,370 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey, smectitic, frigid, shallow Xeric Argidurids

Typical Pedon

Actem cobbly loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; in Butcher Flat about 2,500 feet south and 1,800 feet west of the northeast corner of section 25, T. 38 S., R. 30 E.; U.S. Geological Survey Acty Mountain NW 7.5-minute topographic quadrangle; latitude 42 degrees, 14 minutes, 51 seconds north and longitude 119 degrees, 7 minutes, 50 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; light gray (10YR 7/2) cobbly loam, brown (10YR 4/3) moist; weak medium platy structure; hard, very friable, slightly sticky and slightly plastic; common fine and medium roots; many fine and medium vesicular pores; 10 percent gravel and 10 percent cobbles; neutral (pH 7.3); clear wavy boundary.

Bt—2 to 7 inches; brown (10YR 5/3) clay, yellowish brown (10YR 5/4) moist; moderate and strong coarse subangular blocky structure; hard, firm, very sticky and very plastic; common fine and common medium roots; many fine and medium irregular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.4); clear wavy boundary.

Btk—7 to 15 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; common fine and medium roots; many fine irregular pores; common distinct clay films on faces of peds; secondary carbonates finely disseminated in matrix; strongly effervescent; slightly alkaline (pH 7.5); clear wavy boundary.

Bkqm—15 to 20 inches; very pale brown (10YR 8/3) cemented material, pale brown (10YR 6/3) moist; moderate very thick platy structure; very rigid; indurated with secondary silica; few fine roots between plates; secondary carbonates finely disseminated in matrix; strongly effervescent; abrupt smooth boundary.

2R—20 inches; basalt.

Range in Characteristics

Depth to the duripan: 13 to 20 inches
Depth to bedrock: 20 to 30 inches
Depth to secondary carbonates: 5 to 10 inches
Particle-size control section: Clay content—35 to 45 percent; rock fragment content—0 to 35 percent gravel and cobbles
Reaction: Neutral or slightly alkaline

A horizon
Value—6 or 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—cobbly loam
Clay content—20 to 27 percent
Rock fragment content—15 to 35 percent total, with 5 to 15 percent gravel, 10 to 15 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 2 percent
Other features—clear lower boundary; 10 to 20 percent (absolute) clay increase between A and Bt horizons

Bt horizon
Hue—7.5YR or 10YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—clay, gravelly clay, or gravelly clay loam
Clay content—35 to 45 percent

Rock fragment content—0 to 35 percent total, with 0 to 25 percent gravel and 0 to 10 percent cobbles

Btk horizon
Hue—7.5YR or 10YR
Texture—clay loam, clay, or cobbly clay loam
Clay content—35 to 45 percent
Rock fragment content—0 to 25 percent total, with 0 to 20 percent gravel and 0 to 10 percent cobbles
Calcium carbonate equivalent—1 to 3 percent
Other features—some pedons have a Bkq horizon above the duripan

Bkqm horizon
Hue—7.5YR or 10YR
Value—7 or 8 dry, 6 or 7 moist
Chroma—3 or 4 dry or moist

Alyan Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Residuum and colluvium derived from volcanic rock such as welded tuff, basalt, or rhyolite
Slope range: 3 to 15 percent
Elevation: 4,600 to 5,890 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Aridic Argixerolls

Typical Pedon

Alyan gravelly sandy loam, 3 to 15 percent slopes, in an area of rangeland, in map unit 202; Lake County, Oregon; about 2,000 feet west and 1,000 feet south of the northeast corner of section 6, T. 26 S., R. 23 E.; U.S. Geological Survey Rams Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 20 minutes, 59 seconds north and longitude 120 degrees, 0 minutes, 7 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; common very fine, fine, and medium irregular pores; 15 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.
A2—3 to 11 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; common very fine and few fine and medium irregular pores; slightly alkaline (pH 7.6); clear smooth boundary.
Bt1—11 to 18 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to weak fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and medium and common fine roots; few very fine, fine, and medium irregular pores; common

distinct clay films on faces of peds; slightly alkaline (pH 7.8); gradual wavy boundary.

Bt2—18 to 23 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure parting to moderate medium angular blocky; hard, firm, moderately sticky and moderately plastic; few fine and medium roots; few very fine and medium and common fine irregular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.8); abrupt wavy boundary.

R—23 inches; rhyolite.

Range in Characteristics

Mollic epipedon thickness: 8 to 19 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—35 to 50 percent; rock fragment content—0 to 25 percent
Reaction: Neutral or slightly alkaline

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—gravelly sandy loam
Clay content—12 to 20 percent
Rock fragment content—15 to 35 percent total, with 15 to 30 percent gravel and 0 to 5 percent cobbles
Organic matter content—1 to 3 percent

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—sandy clay loam, loam, sandy loam, gravelly sandy loam, or gravelly loam
Clay content—16 to 25 percent
Rock fragment content—0 to 30 percent total, with 0 to 25 percent gravel, 0 to 5 percent cobbles, and 0 to 3 percent stones
Organic matter content—1 to 2 percent

Bt horizon
Hue—10YR or 7.5YR
Value—5 to 7 dry, 3 to 5 moist; darker value common only in upper subhorizon
Chroma—2 to 4 dry or moist
Texture—clay loam, clay, gravelly clay loam, or cobbly clay loam
Clay content—35 to 50 percent
Rock fragment content—0 to 25 percent total, with 0 to 25 percent gravel and 0 to 5 percent cobbles

Anawalt Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt with an influence of loess and volcanic ash in the upper part
Slope range: 0 to 15 percent
Elevation: 4,350 to 6,040 feet
Mean annual precipitation: 8 to 13 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey, smectitic, frigid Lithic Xeric Haplargids

Typical Pedon

Anawalt stony loam in an area of rangeland, in map unit 205, Anawalt-Freznik complex, 1 to 5 percent slopes; Lake County, Oregon; about 2,600 feet south and 200 feet east of the northwest corner of section 18, T. 33 S., R. 23 E.; U.S. Geological Survey Commodore Ridge 7.5-minute topographic quadrangle; latitude 42 degrees, 42 minutes, 35 seconds north and longitude 120 degrees, 3 minutes, 7 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; light brownish gray (10YR 6/2) stony loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to strong very fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 10 percent gravel, 8 percent cobbles, and 8 percent stones; slightly alkaline (pH 7.5); abrupt smooth boundary.
Bt1—3 to 7 inches; brown (10YR 4/3) cobbly clay loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure parting to strong very fine and fine granular; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine tubular pores; common faint clay films on faces of peds; 10 percent gravel, 10 percent cobbles, and 2 percent stones; slightly alkaline (pH 7.5); clear smooth boundary.
Bt2—7 to 14 inches; yellowish brown (10YR 5/4) cobbly clay loam, dark yellowish brown (10YR 3/4) moist; strong medium and fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and few fine and medium roots; few fine tubular pores; many distinct clay films on faces of peds; 10 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.5); clear smooth boundary.
Bt3—14 to 18 inches; brown (10YR 5/3) clay, dark yellowish brown (10YR 3/4) moist; strong fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few fine tubular pores; common distinct clay films on faces of peds; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.5); abrupt wavy boundary.
R—18 inches; welded tuff.

Range in Characteristics

Depth to bedrock: 12 to 20 inches
Particle-size control section: Clay content—35 to 60 percent; rock fragment content—5 to 35 percent
Reaction: Neutral to moderately alkaline
Other features: An abrupt clay increase of 15 to 25 percent absolute is between the A and Bt horizons. The bedrock is fractured, and carbonates or opal is on the lower side of rock fragments in some pedons.

A horizon
Value—5 or 6 dry, 2 to 4 moist
Chroma—2 to 4 dry or moist
Texture—loam, very gravelly loam, very cobbly loam, stony loam, gravelly clay loam, or gravelly loam
Clay content—12 to 32 percent
Rock fragment content—5 to 60 percent total, with 5 to 50 percent gravel, 0 to 30 percent cobbles, and 0 to 15 percent stones
Organic matter content—0.2 to 0.5 percent

Bt horizon

Hue—10YR or 7.5YR
Value—3 to 6 dry, 3 or 4 moist
Chroma—2 to 6 dry or moist
Texture—clay loam, cobbly clay loam, clay, or cobbly clay
Clay content—28 to 60 percent, but averages more than 35 percent
Rock fragment content—5 to 35 percent total, with 5 to 15 percent gravel, 0 to 15 percent cobbles, and 0 to 5 percent stones
Calcium carbonate equivalent—0 to 1 percent directly above bedrock
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter directly above bedrock
Other feature—accumulations of secondary silica as pendants on rock fragments in some pedons

Arcia Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Residuum and colluvium derived from volcanic rock such as basalt and welded tuff
Slope range: 2 to 15 percent
Elevation: 5,390 to 6,380 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Pachic Argixerolls

Typical Pedon

Arcia gravelly loam in an area of rangeland, in map unit 481, Ninemile-Arcia complex, 2 to 15 percent slopes; Lake County, Oregon; 2,000 feet south and 1,250 feet east of the northwest corner of section 18, T. 35 S., R. 18 E.; U.S. Geological Survey Cooper Draw 7.5-minute topographic quadrangle; latitude 42 degrees, 32 minutes, 8 seconds north and longitude 120 degrees, 3 minutes, 21 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and common fine roots; common fine and medium vesicular pores; 15 percent gravel; neutral (pH 7.2); clear smooth boundary.
A2—4 to 12 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to strong medium granular; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common fine and medium interstitial and tubular pores; 10 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.
Bt1—12 to 23 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; strong coarse subangular blocky structure parting to moderate medium angular blocky; hard, firm, moderately sticky and moderately plastic; common very fine roots; common fine and medium interstitial and tubular pores; common distinct continuous clay films on faces of peds; 10 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—23 to 32 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 3/4) moist; moderate medium angular blocky structure parting to weak fine angular blocky; hard, firm, moderately sticky and moderately plastic; common very fine roots; few fine and medium interstitial and tubular pores; common distinct continuous clay films on faces of peds; 10 percent gravel; slightly alkaline (pH 7.6); gradual wavy boundary.

R—32 inches; welded tuff.

Range in Characteristics

Mollic epipedon thickness: 20 to 30 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—35 to 50 percent; rock fragment content—5 to 25 percent
Reaction: Neutral or slightly alkaline

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Clay content—16 to 24 percent
Rock fragment content—15 to 35 percent total, with 10 to 30 percent gravel, 0 to 5 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 3 percent

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Clay content—18 to 26 percent
Rock fragment content—5 to 15 percent total, with 5 to 15 percent gravel and 0 to 5 percent cobbles
Organic matter content—1 to 2 percent

Bt1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—clay loam, clay, or gravelly clay loam
Clay content—35 to 50 percent
Rock fragment content—5 to 25 percent total, with 5 to 20 percent gravel and 0 to 10 percent cobbles

Bt2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—clay loam, clay, or gravelly clay loam
Clay content—40 to 50 percent
Rock fragment content—5 to 25 percent total, with 5 to 20 percent gravel and 0 to 10 percent cobbles

Arness Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Residuum and colluvium derived from volcanic rock such as welded tuff

Slope range: 2 to 20 percent
Elevation: 4,520 to 5,520 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy, mixed, superactive, frigid, shallow Argiduridic Durixerolls

Typical Pedon

Arness stony loam in an area of rangeland, in map unit 553, Reluctan-Arness complex, 2 to 20 percent slopes; Lake County, Oregon; about 500 feet east and 100 feet north of the southwest corner of section 4, T. 27 S., R. 22 E., U.S. Geological Survey Rams Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 15 minutes, 9 seconds north and longitude 120 degrees, 5 minutes, 33 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; light brownish gray (10YR 6/2) stony loam, dark brown (10YR 3/3) moist; moderate thick and medium platy structure parting to moderate very fine and fine granular; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine vesicular pores; 15 percent gravel, 5 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.6); abrupt smooth boundary.

AB—2 to 9 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate very fine and fine subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine tubular pores; 15 percent gravel, 5 percent cobbles, and 2 percent stones; slightly alkaline (pH 7.7); clear smooth boundary.

Bt—9 to 17 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine, medium, and coarse roots; common very fine tubular pores; common faint and distinct continuous clay films on faces of peds; 20 percent gravel and 2 percent cobbles; slightly alkaline (pH 7.8); abrupt wavy boundary.

Bkqm—17 to 21 inches; yellow (10YR 7/8) cemented material, yellowish brown (10YR 5/6) moist; very rigid; indurated with secondary silica and opaline; few very fine roots in fractures; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

R—21 inches; welded tuff.

Range in Characteristics

Mollic epipedon thickness: 7 to 12 inches
Depth to the duripan: 12 to 19 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—30 to 35 percent; rock fragment content—15 to 30 percent

A horizon
Value—4 to 6 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—stony loam
Clay content—10 to 24 percent
Rock fragment content—20 to 35 percent total, with 10 to 15 percent gravel, 0 to 5 percent cobbles, and 10 to 15 percent stones
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

AB horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—gravelly loam or cobbly loam
Clay content—16 to 26 percent
Rock fragment content—20 to 30 percent total, with 5 to 15 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Reaction—neutral or slightly alkaline

Bt horizon
Value—4 to 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—gravelly clay loam or cobbly clay loam
Clay content—30 to 35 percent
Rock fragment content—15 to 30 percent total, with 10 to 20 percent gravel and 0 to 10 percent cobbles
Reaction—neutral or slightly alkaline
Calcium carbonate equivalent—0 to 1 percent above duripan

Atlow Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Hills and mountains
Landform: Hillslopes and mountain slopes
Parent material: Residuum and colluvium derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 50 percent
Elevation: 4,300 to 5,100 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Xeric Haplargids

Typical Pedon

Atlow very cobbly loam in an area of rangeland, in map unit 209, Atlow-Rock outcrop complex, 20 to 50 percent slopes; Harney County, Oregon; about 1,400 feet south and 800 feet east of the northwest corner of section 14, T. 38 S., R. 36 E., U.S. Geological Survey Red Lookout Butte 7.5-minute topographic quadrangle; latitude 42 degrees, 16 minutes, 30 seconds north and longitude 118 degrees, 28 minutes, 1 seconds west; NAD 27.(Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; slightly hard, very friable, moderately sticky and moderately plastic; few fine roots; many fine vesicular pores; 20 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

Bt1—3 to 7 inches; brown (10YR 5/3) very cobbly clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; few fine roots; common fine irregular pores; few faint clay films on faces of peds; 15 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.4); gradual wavy boundary.

Bt2—7 to 11 inches; brown (10YR 5/3) very cobbly clay loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; few fine roots; common fine irregular pores; few faint clay films on faces of peds; 15 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.4); abrupt irregular boundary.

R—11 inches; basalt.

Range in Characteristics

Depth to bedrock: Ranges from 10 to 20 inches, but commonly is 10 to 14 inches
Particle-size control section: Clay content—27 to 35 percent; rock fragment content—35 to 50 percent, mainly gravel and cobbles
Reaction: Neutral or slightly alkaline

A horizon
Value—6 or 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loam
Clay content—20 to 27 percent
Rock fragment content—35 to 60 percent total, with 15 to 20 percent gravel, 20 to 30 percent cobbles, and 0 to 10 percent stones
Organic matter content—0.1 to 0.5 percent

Bt horizon
Value—5 to 7 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly clay loam, very gravelly clay loam, or very cobbly sandy clay loam
Clay content—27 to 35 percent
Rock fragment content—35 to 50 percent total, with 10 to 30 percent gravel and 15 to 30 percent cobbles

Characteristics Outside Range of Series

Depth to the R horizon ranges from 10 to 20 inches.

Baconcamp Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Mountains
Landform: Mountain slopes
Parent material: Colluvium derived from volcanic rock such as basalt
Slope range: 3 to 30 percent
Elevation: 5,800 to 6,400 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 30 to 60 days

Taxonomic classification: Loamy-skeletal, mixed, superactive Pachic Haplocryolls

Typical Pedon

Baconcamp very cobbly loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; in Trout Creek Mountains about 700 feet south and 2,300 feet east of the northwest corner of section 17, T. 41 S., R. 38 E.; U.S. Geological Survey

The V topographic quadrangle; latitude 42 degrees, 1 minute, 6 seconds north and longitude 118 degrees, 17 minutes, 6 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) very cobbly loam, black (10YR 2/1) moist; moderate thin platy structure parting to weak fine granular; soft, very friable, slightly sticky and nonplastic; many very fine, fine, and medium roots; many irregular and tubular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; slightly acid (pH 6.4); gradual wavy boundary.
A2—4 to 20 inches; very dark grayish brown (10YR 3/2) gravelly loam, black (10YR 2/1) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; many irregular and tubular pores; 15 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); gradual wavy boundary.
A3—20 to 35 inches; dark grayish brown (10YR 4/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many irregular and tubular pores; 45 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); abrupt irregular boundary.
2R—35 inches; fractured basalt.

Range in Characteristics

Mollic epipedon thickness: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—18 to 30 percent; rock fragment content—35 to 50 percent
Reaction: Slightly acid or neutral

A1 horizon
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—very stony clay loam or very cobbly loam
Clay content—18 to 30 percent
Rock fragment content—20 to 50 percent total, with 5 to 30 percent gravel, 5 to 20 percent cobbles, and 0 to 20 percent stones
Organic matter content—3 to 8 percent

A2 horizon
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—gravelly loam, very gravelly loam, very cobbly loam, very stony loam, or very stony clay loam
Clay content—18 to 30 percent
Rock fragment content—20 to 50 percent total, with 15 to 30 percent gravel, 0 to 20 percent cobbles, and 0 to 15 percent stones
Organic matter content—1 to 4 percent

A3 horizon
Value—4 to 7 dry, 3 to 6 moist
Chroma—1 or 2 dry or moist
Texture—very gravelly loam, very cobbly loam, or very gravelly clay loam
Clay content—18 to 30 percent
Rock fragment content—35 to 50 percent total, with 15 to 45 percent gravel, 0 to 20 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 2 percent

Blackhills Series

Depth class: Shallow to bedrock
Drainage class: Somewhat excessively drained
Landscape: Hills
Landform: Hillslopes
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basaltic tuff breccia
Slope range: 15 to 55 percent
Elevation: 4,350 to 5,200 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 45 to 47 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Ashy-skeletal, glassy, mesic Lithic Haploxerolls

Typical Pedon

Blackhills extremely gravelly ashy sandy loam in an area of rangeland, in map unit 560, Rock outcrop-Blackhills-Glencabin complex, 15 to 55 percent slopes; Lake County, Oregon; in the Black Hills about 5 miles south of the town of Christmas Valley; about 1,885 feet east and 1,825 feet north of the southwest corner of section 2, T. 28 S., R. 17 E.; U.S. Geological Survey Christmas Valley 7.5-minute topographic quadrangle; latitude 43 degrees, 10 minutes, 13 seconds north and longitude 120 degrees, 40 minutes, 25 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; brown (10YR 5/3) extremely gravelly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, slightly sticky and nonplastic; common very fine, fine, medium, coarse, and very coarse roots; few very fine interstitial pores; 60 percent gravel and 10 percent cobbles; about 20 percent medium to very coarse, sand-sized (0.25 to 2.00 millimeters), pumiceous ash grains; slightly alkaline (pH 7.8); clear smooth boundary.

A2—2 to 8 inches; brown (10YR 5/3) very gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak medium and coarse granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, medium, coarse, and very coarse roots; few very fine interstitial pores; 40 percent gravel and 5 percent cobbles; about 20 percent medium to very coarse, sand-sized (0.25 to 2.00 millimeters), pumiceous ash grains; moderately alkaline (pH 8.0); clear wavy boundary.

Bk—8 to 11 inches; pale brown (10YR 6/3) extremely gravelly ashy sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, medium, coarse, and very coarse roots; many fine interstitial and common very fine tubular pores; 65 percent gravel and 5 percent cobbles; about 25 percent medium to very coarse, sand-sized (0.25 to 2.00 millimeters), pumiceous ash grains; secondary carbonates segregated as few coatings on rock fragments; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

R—11 inches; fractured tuff breccia with root mats on vertical surfaces between fractures.

Range in Characteristics

Mollic epipedon thickness: 8 to 10 inches
Depth to bedrock: 10 to 17 inches

Depth to secondary carbonates: 8 to 10 inches
Particle-size control section: Clay content—5 to 15 percent; rock fragment content—45 to 85 percent, mainly gravel
Volcanic glass content: 60 to 90 percent in coarse silt to very coarse sand fractions

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—extremely gravelly ashy sandy loam or very gravelly ashy sand
Clay content—5 to 15 percent
Rock fragment content—35 to 75 percent total, with 35 to 65 percent gravel and 5 to 10 percent cobbles
Organic matter content—1 to 2 percent
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Calcium carbonate equivalent—0 to 1 percent

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly ashy sandy loam or very gravelly ashy loamy sand
Clay content—5 to 15 percent
Rock fragment content—35 to 60 percent total, with 35 to 55 percent gravel and 0 to 5 percent cobbles
Organic matter content—1 to 2 percent
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Calcium carbonate equivalent—0 to 1 percent

Bk horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—extremely gravelly ashy sandy loam or extremely gravelly ashy loamy sand
Clay content—5 to 15 percent
Rock fragment content—60 to 85 percent total, with 55 to 75 percent gravel and 5 to 10 percent cobbles
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—4 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—1 to 3
Effervescence—strongly effervescent or violently effervescent
Calcium carbonate equivalent—1 to 3 percent
Other feature—identifiable secondary carbonates

Bluesters Series

Depth class: Moderately deep to cinders
Drainage class: Excessively drained
Landscape: Mountains
Landform: Cinder cones
Parent material: Volcanic ash and cinders
Slope range: 15 to 50 percent
Elevation: 4,570 to 6,100 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy over pumiceous or cindery, glassy, frigid Humic Vitrixerands

Typical Pedon

Bluesters gravelly ashy loamy sand, 15 to 50 percent slopes, in an area of grazeable woodland; in map unit 212; Lake County, Oregon; about 1,800 feet east and 300 feet north of the southwest corner of section 15, T. 23 S., R. 15 E. U.S. Geological Survey Sixteen Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 34 minutes, 22 seconds north and longitude 120 degrees, 54 minutes, 18 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly ashy loamy sand, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine interstitial pores; 20 percent gravel-sized cinders; neutral (pH 6.6); clear smooth boundary.

A2—4 to 12 inches; yellowish brown (10YR 5/4) ashy loamy sand, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; many fine interstitial pores; 10 percent gravel-sized cinders; neutral (pH 6.8); clear smooth boundary.

AC—12 to 23 inches; brown (7.5YR 5/4) ashy loamy coarse sand, dark brown (7.5YR 4/4) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine and few coarse roots; few fine vesicular pores; neutral (pH 6.8); clear wavy boundary.

C—23 to 28 inches; light reddish brown (5YR 6/4) gravelly ashy coarse sand, reddish brown (5YR 4/4) moist; single grain; loose, nonsticky and nonplastic; few very fine, fine, and coarse roots; few fine vesicular pores; 25 percent gravel-sized cinders; neutral (pH 6.8); clear wavy boundary.

2C—28 to 60 inches; light reddish brown (5YR 6/4) cinders, reddish brown (5YR 4/4) moist; single grain; few very fine and fine roots; neutral (pH 7.2).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to cinders: 20 to 30 inches
Particle-size control section: Clay content—2 to 8 percent; rock fragment content—0 to 35 percent

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 to 4 dry, 2 or 3 moist
Clay content—5 to 8 percent
Rock fragment content—15 to 35 percent gravel-sized fragments
Organic matter content—2 to 3 percent

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 to 4 dry, 2 or 3 moist
Texture—gravelly ashy loamy sand, ashy loamy sand, gravelly ashy loamy coarse sand, or ashy loamy coarse sand
Clay content—5 to 8 percent
Rock fragment content—0 to 35 percent gravel-sized fragments
Organic matter content—1 to 2 percent

AC horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist

Texture—gravelly ashy loamy sand, ashy loamy sand, gravelly ashy loamy coarse sand, or ashy loamy coarse sand
Clay content—2 to 8 percent
Rock fragment content—0 to 35 percent gravel-sized fragments

C horizon
Hue—7.5YR or 5YR
Value—4 to 6 dry, 4 or 5 moist
Chroma—3 to 5 dry or moist
Texture—ashy coarse sand, gravelly ashy coarse sand, or very gravelly ashy coarse sand
Clay content—2 to 5 percent
Rock fragment content—10 to 45 percent gravel-sized fragments

2C horizon
Hue—5YR or 7.5YR
Value—5 to 7 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Rock fragment content—90 to 100 percent

Boilout Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Eolian material mixed with volcanic ash over residuum derived from basalt and tuff
Slope range: 2 to 10 percent
Elevation: 4,340 to 4,910 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Ashy, glassy, mesic, shallow Vitrixerandic Argidurids

Typical Pedon

Boilout cobbly ashy fine sandy loam, 2 to 10 percent slopes, in an area of rangeland, in map unit 214; Lake County, Oregon; about 1 mile east of Burma Rim and 0.5 mile north of South Buffalo Waterhole; about 1,450 feet south and 2,500 feet west of the northeast corner of section 32, T. 27 S., R. 20 E.; U.S. Geological Survey Buffalo Well 7.5-minute topographic quadrangle; latitude 43 degrees, 11 minutes, 23 seconds north and longitude 120 degrees, 20 minutes, 40 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) cobbly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure parting to moderate medium granular; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; many very fine, common fine, and few medium interstitial and tubular pores; 10 percent gravel, 10 percent cobbles, and 3 percent stones; slightly alkaline (pH 7.6); abrupt smooth boundary.
A2—3 to 6 inches; light brownish gray (10YR 6/2) cobbly ashy very fine sandy loam, dark grayish brown (10YR 4/2) moist; strong thick platy structure parting to weak medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine, common fine, and few

medium vesicular pores; 5 percent gravel, 10 percent cobbles, and 2 percent stones; slightly alkaline (pH 7.7); abrupt smooth boundary.

Btq1—6 to 9 inches; pale brown (10YR 6/3) ashy clay loam, brown (10YR 4/3) moist; strong medium platy structure parting to moderate medium subangular blocky; hard, firm, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine, few fine, and few medium tubular pores; common distinct opal coatings on faces of peds; common distinct clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.

Btq2—9 to 11 inches; light brown (7.5YR 6/4) ashy clay loam, brown (7.5YR 4/4) moist; moderate medium platy structure parting to strong fine subangular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine tubular pores; common distinct opal coatings on faces of peds; common distinct clay films on faces of peds; moderately alkaline (pH 7.9); abrupt smooth boundary.

Bqk—11 to 16 inches; very pale brown (10YR 7/4) extremely paragravelly ashy loam, yellowish brown (10YR 5/4) moist; moderate medium platy structure parting to strong fine angular blocky; very hard, very firm, slightly sticky and slightly plastic; common very fine and few fine, medium, and coarse roots; slightly effervescent; few faint opal coatings on faces of peds; secondary carbonates segregated as few fine coatings on duripan fragments; 80 percent moderately cemented duripan fragments; moderately alkaline (pH 7.9); abrupt smooth boundary.

Bqkm1—16 to 34 inches; very pale brown (10YR 8/4) cemented material, light yellowish brown (10YR 6/4) moist; strong medium and thick platy structure parting to strong fine and medium angular blocky; extremely hard, very firm; moderately cemented with secondary silica; secondary carbonates segregated as few medium coatings on bottoms of peds; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bqkm2—34 to 59 inches; very pale brown (10YR 8/2) cemented material, light brownish gray (10YR 6/2) and very pale brown (10YR 7/4) moist; strong very thick platy structure; very rigid; indurated with secondary silica; secondary carbonates segregated as few medium coatings on bottoms of peds; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bqkm3—59 to 62 inches; very pale brown (10YR 8/3) cemented material, light yellowish brown (10YR 6/4) moist; strong medium platy structure; rigid; very strongly cemented with secondary silica; secondary carbonates segregated as few medium coatings on bottoms of peds; strongly effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to the duripan: 14 to 20 inches
Volcanic ash influence: 14 to 20 inches
Particle-size control section: Clay content—20 to 32 percent; rock fragment content—0 to 10 percent, mainly gravel
Other feature: Lithology of fragments—volcanic rock such as basalt or tuff

A1 horizons
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Clay content—8 to 16 percent
Rock fragment content—15 to 35 percent total, with 10 to 15 percent gravel, 5 to 15 percent cobbles, and 0 to 5 percent stones
Organic matter content—0.3 to 0.5 percent

A2 horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly ashy very fine sandy loam, ashy very fine sandy loam, or cobbly ashy very fine sandy loam
Clay content—10 to 18 percent
Rock fragment content—10 to 20 percent total, with 5 to 15 percent gravel, 5 to 10 percent cobbles, and 0 to 3 percent stones
Organic matter content—0.2 to 0.4 percent

Btq1 horizon
Hue—10YR or 7.5YR
Chroma—2 or 3 dry or moist
Clay content—20 to 32 percent
Texture—ashy loam or ashy clay loam
Clay content—20 to 32 percent
Rock fragment content—0 to 10 percent gravel
Reaction—slightly alkaline or moderately alkaline

Btq2 horizon
Chroma—3 or 4 dry or moist
Texture—ashy clay loam
Clay content—28 to 32 percent
Rock fragment content—0 to 10 percent gravel
Reaction—slightly alkaline or moderately alkaline

Bqk horizon (where present)
Texture—extremely paragravelly ashy loam or very paragravelly ashy loam
Clay content—15 to 26 percent
Pararock fragment content—35 to 80 percent total, with 25 to 55 percent paragravel and 10 to 25 percent paracobbles
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Other feature—pararock consists of weakly cemented to moderately cemented, weathered duripan fragments

Bqkm horizon
Hue—10YR or 7.5YR
Value—7 or 8 dry, 5 or 6 moist
Chroma—2 to 4 dry or moist
Cementation—moderately cemented to indurated; at least one indurated subhorizon

Bonnick Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins
Landform: Lake terraces
Parent material: Pumiceous ash and volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 10 percent
Elevation: 4,300 to 4,700 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Haploxerolls

Typical Pedon

Bonnick very gravelly ashy loamy sand in an area of rangeland, in map unit 217, Bonnick-Fort Rock complex, 0 to 2 percent slopes; Lake County, Oregon; about 2,000 feet south and 200 feet east of the northwest corner of section 13, T. 25 S., R. 14 E.; U.S. Geological Survey Cougar Mountain 7.5-minute topographic quadrangle; latitude 43 degrees, 24 minutes, 27 seconds north and longitude 120 degrees, 59 minutes, 26 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; grayish brown (10YR 5/2) very gravelly ashy loamy sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few medium and common very fine and fine interstitial pores; 40 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized, pumiceous ash grains; 40 percent fine gravel; slightly alkaline (pH 7.4); clear smooth boundary.

AB—3 to 10 inches; grayish brown (10YR 5/2) gravelly ashy loamy sand, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine interstitial pores; 35 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized, pumiceous ash grains; 15 percent fine gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bw1—10 to 20 inches; pale brown (10YR 6/3) ashy loamy sand, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; few very fine and fine interstitial pores; 25 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized, pumiceous ash grains; 10 percent fine gravel; slightly alkaline (pH 7.8); clear smooth boundary.

Bw2—20 to 28 inches; pale brown (10YR 6/3) gravelly ashy loamy sand, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; few very fine interstitial pores; 15 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized, pumiceous ash grains; 20 percent fine gravel; moderately alkaline (pH 8.2); clear smooth boundary.

BC—28 to 42 inches; light brownish gray (10YR 6/2) gravelly ashy loamy sand, very dark brown (10YR 2/2) moist; massive; soft, very friable, nonsticky and nonplastic; 10 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized, pumiceous ash grains; 25 percent fine gravel; moderately alkaline (pH 8.4); abrupt smooth boundary.

2Bqb—42 to 45 inches; grayish brown (10YR 5/2) very gravelly loamy sand, dark brown (10YR 3/3) moist; strong medium and thick platy structure; hard, firm and brittle, nonsticky and nonplastic; 50 percent fine gravel; moderately alkaline (pH 8.4); abrupt smooth boundary.

2C—45 to 60 inches; black (10YR 2/1) and light yellowish brown (2.5Y 6/4) extremely gravelly sand, brown (10YR 4/3) and very dark brown (10YR 2/2) moist; single grain; loose, nonsticky and nonplastic; 70 percent fine gravel; slightly effervescent; strongly alkaline (pH 8.8).

Range in Characteristics

Mollic epipedon thickness: 10 to 20 inches, includes AB horizon
Depth to bedrock: More than 60 inches
Depth to buried horizons: 42 to 60 inches
Particle-size control section: Clay content—2 to 10 percent; rock fragment content—5 to 25 percent, mainly fine gravel

Other features: Rock fragments are of basalt and tuff origin. Volcanic glass content is 30 to 70 percent in coarse silt to fine sand fractions.

A horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand, gravelly ashy loamy sand, or very gravelly ashy loamy sand
Clay content—2 to 12 percent
Rock fragment content—10 to 45 percent fine gravel
Organic matter content—1 to 3 percent
Other feature—15 to 50 percent visible pumiceous ash grains in medium sand, coarse sand, and very coarse sand fractions (0.25 to 2.00 millimeters)

AB horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—gravelly ashy loamy sand or ashy loamy sand
Clay content—2 to 10 percent
Rock fragment content—5 to 25 percent fine gravel
Other feature—15 to 50 percent visible pumiceous ash grains in medium sand, coarse sand, and very coarse sand fractions (0.25 to 2.00 millimeters)

Bw horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—gravelly ashy loamy sand or ashy loamy sand
Clay content—2 to 10 percent
Rock fragment content—5 to 25 percent fine gravel
Reaction—slightly alkaline or moderately alkaline
Other feature—15 to 50 percent visible pumiceous ash grains in medium sand, coarse sand, and very coarse sand fractions (0.25 to 2.00 millimeters)

BC horizon
Value—5 or 6 dry, 2 to 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly ashy loamy sand or ashy loamy sand
Clay content—2 to 10 percent
Rock fragment content—5 to 25 percent fine gravel
Reaction—slightly alkaline or moderately alkaline
Other feature—10 to 30 percent visible pumiceous ash grains in medium sand, coarse sand, and very coarse sand fractions (0.25 to 2.00 millimeters)

2Bqb horizon (where present)
Value—5 or 6 dry, 2 to 4 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly loamy sand or gravelly sandy loam
Clay content—2 to 12 percent
Rock fragment content—20 to 50 percent fine gravel
Volcanic glass content—2 to 10 percent in coarse silt to very coarse sand fractions
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Consistence—hard or very hard when dry, firm and brittle when moist

2C horizon
Hue—10YR or 2.5Y
Value—2 to 6 dry, 2 to 5 moist

Chroma—1 to 4 dry or moist
Texture—extremely gravelly sand or very gravelly sand
Clay content—0 to 2 percent
Rock fragment content—50 to 70 percent fine gravel
Volcanic glass content—1 to 5 percent in coarse silt to very coarse sand fractions
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Effervescence—very slightly effervescent to strongly effervescent

Booth Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Colluvium derived from volcanic rock such as welded tuff
Slope range: 2 to 15 percent
Elevation: 5,940 to 6,770 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Vertic Palexerolls

Typical Pedon

Booth very stony loam, 2 to 15 percent slopes, in an area of rangeland, in map unit 222; Lake County, Oregon; in Crooked Creek Valley about 2,000 feet east and 600 feet north of the southwest corner of section 20, T. 36 S., R. 21 E.; U.S. Geological Survey Lake Abert South 7.5-minute topographic quadrangle; latitude and longitude not available; NAD 27. (Colors are for moist soil unless otherwise stated.)

A—0 to 4 inches; very dark brown (10YR 2/2) very stony loam, dark gray (10YR 4/1) dry; weak thin platy structure; hard, friable, slightly sticky and slightly plastic; many roots; many very fine pores; 20 percent gravel, 10 percent cobbles, and 10 percent stones; slightly acid (pH 6.2); clear smooth boundary.
2Bt1—4 to 12 inches; very dark brown (10YR 2/2) clay, dark grayish brown (10YR 4/2) dry; moderate medium and coarse prismatic structure; very hard, very firm, very sticky and very plastic; common roots; few very fine tubular pores; nearly continuous stress cutans on peds; slightly acid (pH 6.4); clear smooth boundary.
2Bt2—12 to 24 inches; dark brown (10YR 3/3) clay, grayish brown (10YR 5/2) dry, dark brown (10YR 4/3) rubbed; strong coarse prismatic structure; very hard, very firm, very sticky and very plastic; few roots; few very fine tubular pores; continuous stress cutans on peds; neutral (pH 6.6); abrupt smooth boundary.
3Cr—24 to 26 inches; olive brown (2.5Y 4/4) weathered tuff, light gray (2.5Y 7/2) and olive yellow (2.5Y 6/6) dry; extremely firm; clear wavy boundary.
3R—26 inches; welded tuff.

Range in Characteristics

Mollic epipedon thickness: 7 to 15 inches, includes upper part of argillic horizon
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—45 to 60 percent; rock fragment content—0 to 5 percent
Reaction: Slightly acid or neutral
Other feature: 20 percent or more absolute clay increase between A and 2Bt horizons

A horizon
Hue—10YR or 7.5YR
Value—2 or 3 moist, 3 to 5 dry
Chroma—1 to 3 moist or dry
Clay content—10 to 25 percent
Rock fragment content—35 to 55 percent total, with 5 to 20 percent gravel, 0 to 20 percent cobbles, and 10 to 25 percent stones
Organic matter content—1 to 3 percent

2Bt horizon
Hue—7.5YR to 2.5Y
Value—2 to 4 moist, 3 to 6 dry
Chroma—2 to 4 moist or dry
Texture—clay or silty clay
Clay content—45 to 60 percent
Rock fragment content—0 to 5 percent

Boravall Series

Depth class: Very deep to bedrock
Drainage class: Poorly drained
Landscape: Basins
Landform: Lakebeds
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 3 percent
Elevation: 4,450 to 4,520 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine, smectitic, calcareous, mesic Aeric Halaquepts

Typical Pedon

Boravall clay loam in an area of rangeland, in map unit 642, Turpin-Boravall-Playas complex, 0 to 5 percent slopes; Lake County, Oregon; about 900 feet north and 1,900 feet east of the southwest corner of section 1, T. 34 S., R. 25 E.; U.S. Geological Survey Bluejoint Lake West 7.5-minute topographic quadrangle; latitude 42 degrees, 38 minutes, 59 seconds north and longitude 119 degrees, 43 minutes, 4 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

Aknz1—0 to 2 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine, many fine, and few medium roots; many fine vesicular pores; slightly effervescent; strongly alkaline (pH 8.5); abrupt smooth boundary.
Aknz2—2 to 6 inches; olive brown (2.5Y 4/3) clay loam, dark grayish brown (2.5Y 4/2) moist; weak medium platy structure; slightly hard, very friable, moderately sticky and moderately plastic; few very fine, many fine, and few medium roots; common fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.
Bkn1—6 to 17 inches; olive brown (2.5Y 4/3) clay loam, dark olive brown (2.5Y 3/3) moist; weak fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine, many fine, and few medium roots; few fine irregular pores; strongly effervescent, disseminated calcium carbonate; strongly alkaline (pH 8.8); clear smooth boundary.

Bkn2—17 to 31 inches; light olive brown (2.5Y 5/3) clay loam, dark olive brown (2.5Y 3/3) moist; moderate very fine and fine angular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine, many fine, and few medium roots; few fine irregular pores; strongly effervescent, disseminated calcium carbonate; strongly alkaline (pH 8.8); gradual smooth boundary.

Bkn3—31 to 42 inches; olive (5Y 5/3) clay loam, olive (5Y 4/3) moist; strong medium and coarse prismatic structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; few fine and medium roots; few fine tubular pores; common fine soft round calcium carbonate masses throughout matrix; common distinct continuous organic coatings on faces of peds; strongly effervescent; strongly alkaline (pH 9.0); gradual smooth boundary.

Bkn4—42 to 54 inches; olive (5Y 5/3) clay, olive (5Y 4/3) moist; strong medium and coarse prismatic structure parting to moderate medium angular blocky; very hard, firm, moderately sticky and moderately plastic; few fine and medium roots; few fine tubular pores; common fine soft round calcium carbonate masses throughout matrix; common distinct continuous organic coatings on faces of peds; strongly effervescent; strongly alkaline (pH 9.0); gradual smooth boundary.

Bkn5—54 to 64 inches; olive (5Y 5/3) clay, olive (5Y 4/3) moist; strong coarse prismatic structure; very hard, firm, moderately sticky and moderately plastic; few fine and medium roots; few fine tubular pores; common fine and medium soft round calcium carbonate masses throughout matrix; few fine prominent brown (7.5YR 5/4) redoximorphic iron concentrations; common distinct continuous organic coatings on faces of peds; strongly effervescent; strongly alkaline (pH 9.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—35 to 45 percent by weighted average
Depth to water table: At the surface to a depth of 36 inches below the surface at some time in December through June (apparent) and as much as 6 inches above the surface at some time in March through May (frequent ponding)

Aknz horizon
Hue—10YR or 2.5Y
Value—4 to 7 dry, 3 or 4 moist
Chroma—1 to 3 dry, 1 or 2 moist
Clay content—27 to 35 percent
Calcium carbonate equivalent—2 to 5 percent
Salinity (electrical conductivity)—16 to 30 millimhos per centimeter
Sodicity (sodium adsorption ratio)—100 to 600
Organic matter content—0.2 to 1.4 percent
Reaction—strongly alkaline or very strongly alkaline

Bkn horizon
Hue—2.5Y or 5Y
Value—4 to 7 dry, 3 to 6 moist
Chroma—1 to 3 dry, 1 to 4 moist
Texture—silty clay loam, clay loam, or clay
Clay content—27 to 50 percent
Calcium carbonate equivalent—2 to 5 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 50
Reaction—moderately alkaline to very strongly alkaline

Borobey Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins and lava plateaus
Landform: Lake terraces and depressions of lava plateaus
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 0 to 15 percent
Elevation: 4,350 to 5,130 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Haploxerolls

Typical Pedon

Borobey ashy loamy sand, 0 to 5 percent slopes, in map unit 225, in an area of rangeland; Lake County, Oregon; about 800 feet south and 275 feet east of the northwest corner of section 24, T. 24 S., R. 21 E.; U.S. Geological Survey Chicago Valley 7.5-minute topographic quadrangle; latitude 43 degrees, 28 minutes, 55 seconds north and longitude 120 degrees, 14 minutes, 1 second west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; grayish brown (10YR 5/2) ashy loamy sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; many very fine and few fine roots; common very fine and fine tubular pores; neutral (pH 7.3); abrupt smooth boundary.

AB—4 to 12 inches; brown (10YR 5/3) ashy loamy sand, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine and common fine roots; few very fine and fine tubular pores; slightly alkaline (pH 7.4); gradual smooth boundary.

Bq1—12 to 29 inches; grayish brown (10YR 5/2) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; hard, very firm and brittle, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine tubular pores; common faint clay films on faces of peds; slightly alkaline (pH 7.4); gradual smooth boundary.

Bq2—29 to 50 inches; grayish brown (10YR 5/2) ashy loamy fine sand, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots; few very fine and fine tubular pores; 5 percent weakly cemented durinodes; slightly alkaline (pH 7.4); clear smooth boundary.

C—50 to 68 inches; grayish brown (10YR 5/2) ashy loamy sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, slightly sticky and nonplastic; few very fine roots; few fine tubular pores; slightly alkaline (pH 7.5).

Range in Characteristics

Mollic epipedon thickness: 10 to 17 inches
Depth to bedrock: More than 60 inches
Depth to firm or very firm, brittle horizon: 10 to 35 inches
Particle-size control section: Clay content—8 to 15 percent; rock fragment content—0 to 30 percent

A horizon
Value—5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist

Texture—ashy loamy sand, ashy sandy loam, gravelly ashy sandy loam, ashy very fine sandy loam, ashy fine sandy loam, or ashy sandy loam
Rock fragment content—0 to 25 percent gravel
Organic matter content—0.5 to 1.5 percent
Reaction—neutral or slightly alkaline

AB horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand, gravelly ashy loamy sand, ashy sandy loam, or gravelly ashy sandy loam
Clay content—2 to 20 percent
Rock fragment content—0 to 30 percent total, with 0 to 25 percent gravel and 0 to 5 percent cobbles
Reaction—neutral or slightly alkaline
Other feature—some pedons have a thin subhorizon that has value of 6 dry but has value of 5 when upper 7 inches of soil profile is mixed

Bq horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—ashy loamy fine sand, ashy fine sandy loam, ashy sandy loam, or gravelly ashy sandy loam
Clay content—4 to 18 percent
Rock fragment content—0 to 30 percent total, with 0 to 25 percent gravel and 0 to 5 percent cobbles
Consistence—firm or very firm and brittle when moist
Reaction—neutral to moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

C horizon
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—ashy loamy sand, very gravelly ashy loamy coarse sand, ashy sandy loam, gravelly ashy loamy sand, or very gravelly ashy sandy loam
Clay content—3 to 18 percent
Rock fragment content—0 to 50 percent gravel
Reaction—neutral to moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Brabble Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Colluvium and residuum derived from volcanic rock such as andesite or basalt
Slope range: 5 to 25 percent
Elevation: 4,450 to 5,230 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Xeric Haplodurids

Typical Pedon

Brabble gravelly sandy clay loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; east of Tule Springs Rims; about 800 feet north and 1,900 feet east of the southwest corner of section 18, T. 37 S., R. 35 E.; U.S. Geological Survey Red Lookout Butte 7.5-minute topographic quadrangle; latitude 42 degrees, 19 minutes, 18 seconds north and longitude 118 degrees, 26 minutes, 30 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly sandy clay loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine irregular pores; 20 percent gravel and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary.

A2—3 to 9 inches; light brownish gray (10YR 6/2) sandy clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; many very fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.4); gradual wavy boundary.

Bw1—9 to 18 inches; yellowish brown (10YR 5/4) clay loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to moderate medium subangular blocky; slightly hard, firm, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.8); gradual wavy boundary.

Bw2—18 to 26 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; many very fine irregular pores; 10 percent gravel; slightly alkaline (pH 7.8); clear wavy boundary.

Bk—26 to 33 inches; pale brown (10YR 6/3) loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; many very fine irregular pores; strongly effervescent with lime segregated in many filaments and soft masses; 10 percent gravel; moderately alkaline (pH 7.9); clear wavy boundary.

2Bkqm—33 to 38 inches; cemented material; extremely hard, brittle; indurated by opaline silica; strongly effervescent; secondary carbonates segregated in filaments and as coatings on rock fragments; 10 percent gravel; clear wavy boundary.

2R—38 inches; fractured andesite.

Range in Characteristics

Depth to the duripan: 20 to 40 inches
Depth to bedrock: 30 to 50 inches
Depth to secondary carbonates: 20 to 30 inches
Particle-size control section: Clay content—20 to 35 percent; rock fragment content—5 to 25 percent, mainly gravel

A1 horizon
Value—5 or 6 dry, 2 or 3 moist
Chroma—1 or 2 dry or moist
Texture—gravelly sandy loam
Clay content—20 to 30 percent
Rock fragment content—15 to 35 percent total, with 15 to 35 percent gravel and 0 to 5 percent cobbles
Organic matter content—0.3 to 0.5 percent
Reaction—neutral or slightly alkaline

A2 horizon
Value—5 or 6 dry, 2 or 3 moist
Chroma—1 or 2 dry or moist
Texture—sandy clay loam or gravelly sandy clay loam
Clay content—20 to 30 percent
Rock fragment content—5 to 25 percent total, with 5 to 25 percent gravel and 0 to 5 percent cobbles
Organic matter content—0.2 to 0.4 percent
Reaction—neutral or slightly alkaline

Bw horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—loam, gravelly loam, clay loam, or gravelly clay loam
Clay content—20 to 35 percent
Rock fragment content—5 to 25 percent total, with 5 to 25 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bk horizon
Value—6 or 7 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—loam, gravelly loam, clay loam, or gravelly clay loam
Clay content—20 to 35 percent
Rock fragment content—5 to 25 percent total, with 5 to 25 percent gravel and 0 to 5 percent cobbles
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter

2Bkqm horizon
Rock fragment content—5 to 20 percent in indurated matrix

Brace Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Elevation: 4,320 to 6,200 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine-loamy, mixed, superactive, frigid Xeric Argidurids

Typical Pedon

Brace gravelly loamy sand in an area of rangeland, in map unit 540, Raz-Brace complex, overblown, 2 to 20 percent slopes, Lake County, Oregon; about 1,800 feet north and 2,000 feet west of the southeast corner of section 16, T. 31 S., R. 20 E., U.S. Geological Survey Diatomite Reservoir 7.5-minute quadrangle; latitude

42 degrees, 52 minutes, 59 seconds north and longitude 120 degrees, 21 minutes, 43 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 5 inches; grayish brown (10YR 5/2) gravelly loamy sand, dark yellowish brown (10YR 3/4) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; few very fine pores; 20 percent gravel; slightly alkaline (pH 7.5); abrupt smooth boundary.
A2—5 to 10 inches; grayish brown (10YR 5/2) gravelly loamy sand, dark yellowish brown (10YR 3/4) moist; weak medium and fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and few fine roots; many very fine and few fine interstitial pores; 20 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.
Bt—10 to 14 inches; brown (10YR 5/3) cobbly loam, dark yellowish brown (10YR 3/4) moist; moderate fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine, medium, and coarse roots; common very fine and fine tubular pores; common faint continuous clay films on faces of peds; 15 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.
Btkq—14 to 22 inches; light yellowish brown (10YR 6/4) cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine, medium, and coarse roots; common very fine tubular pores; common distinct patchy clay films on faces of peds; 15 percent gravel and 15 percent cobbles; 20 percent silica-cemented subangular durinodes; slightly effervescent; common fine slightly hard irregular carbonate threads throughout; slightly alkaline (pH 7.8); clear smooth boundary.
Bkqm—22 to 26 inches; very pale brown (10YR 8/3) cemented material, yellowish brown (10YR 5/6) moist; massive; indurated with opaline silica; strongly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.
R—26 inches; welded tuff.

Range in Characteristics

Depth to the duripan: 20 to 37 inches
Depth to bedrock: 22 to 40 inches
Depth to durinodes: 6 to 25 inches
Depth to secondary carbonates: 14 to 30 inches
Particle-size control section: Clay content—20 to 35 percent; rock fragment content—5 to 35 percent

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—gravelly loamy sand, cobbly loam, or stony loam
Clay content—5 to 26 percent
Rock fragment content—10 to 25 percent gravel, 0 to 20 percent cobbles, and 0 to 15 percent stones
Organic matter content—0.2 to 1.0 percent
Reaction—neutral or slightly alkaline

Bt horizon
Value—5 or 6 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—loam, sandy clay loam, clay loam, cobbly loam, or cobbly sandy clay loam
Clay content—20 to 35 percent
Rock fragment content—5 to 35 percent total, with 5 to 15 percent gravel, 0 to 15 percent cobbles, and 0 to 5 percent stones

Reaction—slightly alkaline or moderately alkaline

Btkq horizon
Value—6 to 8 dry, 3 to 7 moist
Chroma—3 to 6 dry or moist
Texture—gravelly loam, gravelly clay loam, or cobbly clay loam
Clay content—20 to 30 percent
Rock fragment content—15 to 35 percent total, with 15 to 25 percent gravel and 0 to 15 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter

Brezniak Series

Depth class: Very shallow or shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus and mountains
Landform: Side slopes of deeply dissected lava plateaus and mountain slopes
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 30 to 65 percent
Elevation: 4,520 to 6,000 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Clayey, smectitic, mesic Lithic Argixerolls

Typical Pedon

Brezniak cobbly loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; about 1,200 feet south and 1,200 feet west of the northeast corner of section 27, T. 35.5 S., R. 32.5 E., U.S. Geological Survey Skull Creek Butte 7.5-minute topographic quadrangle; latitude 42 degrees, 28 minutes, 36 seconds north and longitude 118 degrees, 49 minutes, 6 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak and moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine tubular and irregular pores; 10 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.2); abrupt smooth boundary.

Bt1—3 to 7 inches; brown (10YR 4/3) clay, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine and fine tubular and irregular pores; common faint clay films on faces of peds; neutral (pH 7.2); clear smooth boundary.

Bt2—7 to 10 inches; reddish yellow (7.5YR 6/6) clay, strong brown (7.5YR 4/6) moist; moderate medium angular blocky structure; extremely hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine and fine tubular and irregular pores; common distinct clay films on faces of peds; 10 percent stones; neutral (pH 6.8); abrupt wavy boundary.

R—10 inches; fractured basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 10 inches
Depth to bedrock: 7 to 12 inches

Particle-size control section: Clay content—35 to 45 percent; rock fragment content—5 to 15 percent
Reaction: Neutral throughout

A horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Clay content—18 to 25 percent
Rock fragment content—15 to 35 percent total, with 5 to 10 percent gravel, 10 to 20 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 3 percent
Other feature—abrupt textural change of 17 to 25 percent absolute between the A and Bt horizons

Bt horizon
Value—4 to 6 dry, 2 to 4 moist
Chroma—3 to 6 dry or moist
Texture—clay loam or clay
Clay content—35 to 50 percent
Rock fragment content—5 to 15 percent total, with 0 to 5 percent gravel, 0 to 2 percent cobbles, and 0 to 10 percent stones

Bridgewell Series

Depth class: Very deep to bedrock
Drainage class: Poorly drained
Landscape: Basins
Landform: Lakebeds
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Elevation: 4,300 to 5,490 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, calcareous, frigid Aquandic Endoaquolls

Typical Pedon

Bridgewell ashy loam, 0 to 2 percent slopes, in an area of rangeland, in map unit 232, Lake County, Oregon; in Silver Lake; about 800 feet north and 2,600 feet west of the southeast corner of section 32, T. 28 S., R. 16 E.; U.S. Geological Survey Egli Rim 7.5-minute topographic quadrangle; latitude 43 degrees, 5 minutes, 43.3 seconds north and longitude 120 degrees, 50 minutes, 55.1 seconds west; NAD 27. (When described on October 15, 1998, the soil was very moist or wet with an apparent water table at a depth of 36 inches. Colors are for moist soil unless otherwise stated.)

A1—0 to 3 inches; very dark gray (10YR 3/1) ashy loam, grayish brown (10YR 5/2) dry; weak thin platy structure; hard, friable, moderately sticky and slightly plastic; many very fine and common fine and medium roots; many very fine and fine interstitial pores; moderately alkaline (pH 8.4); clear smooth boundary.
A2—3 to 6 inches; very dark gray (10YR 3/1) ashy clay loam, grayish brown (10YR 5/2) dry; weak fine and very fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many very fine, fine, and medium roots; common very fine and fine interstitial and tubular pores; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

A3—6 to 14 inches; very dark gray (10YR 3/1) ashy mucky loam, gray (10YR 5/1) dry; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine tubular pores; slightly effervescent; many visible pumiceous ash grains; moderately alkaline (pH 8.4); gradual smooth boundary.

AC—14 to 23 inches; very dark gray (10YR 3/1) ashy clay loam, gray (10YR 6/1) dry; weak medium platy structure; hard, friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; many very fine and common fine tubular pores; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C—23 to 36 inches; brown (10YR 5/3) ashy silt loam, light gray (10YR 7/2) dry; strong very fine angular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many very fine and common fine tubular pores; common visible pumice grains; few fine prominent light gray (5Y 7/1 and N 7/0) iron depletions near pores; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Ck1—36 to 50 inches; brown (10YR 5/3) ashy silty clay loam, very pale brown (10YR 8/2) dry; massive; hard, firm, moderately sticky and moderately plastic; common very fine, fine, and medium roots; common very fine and few fine tubular pores; few fine prominent light gray (5Y 7/1 and N 7/0) iron depletions near pores; slightly effervescent in matrix and strongly effervescent in secondary masses; moderately alkaline (pH 8.4); clear smooth boundary.

Ck2—50 to 60 inches; brown (10YR 5/3) ashy loam, very pale brown (10YR 8/2) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and few fine tubular pores; light gray (5Y 7/1 and N 7/0) iron depletions near pores; slightly effervescent in matrix and strongly effervescent in secondary masses; moderately alkaline (pH 8.4).

Range in Characteristics

Mollic epipedon thickness: 12 to 20 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—18 to 35 percent
Depth to secondary carbonates: 18 to 43 inches
Volcanic glass content: 75 to about 100 percent in coarse silt to fine sand fractions
Depth to water table (apparent): From the surface to a depth of 30 inches some time during December through July (apparent)
Ponding (occasional): As high as 36 inches above the surface during December through July
Depth to aquic conditions: 0 to 10 inches
Reaction: Moderately alkaline throughout
Other feature: It is assumed that enough active ferrous iron is in the A and AC horizons, when aquic conditions are present, for a positive reaction to alpha,alpha-dipyridyl.

A1 horizon
Hue—10YR or 2.5Y
Value—4 or 5 dry
Chroma—1 or 2 moist or dry
Clay content—10 to 27 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Organic matter content—4 to 8 percent

A2 and A3 horizons
Hue—10YR or 2.5Y
Value—4 or 5 dry

Chroma—1 or 2 moist or dry
Texture—ashy loam, ashy clay loam, or ashy mucky loam
Clay content—18 to 35 percent
Effervescence—very slightly effervescent or slightly effervescent
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Organic matter content—4 to 12 percent

C and Ck horizons
Hue—10YR or 2.5Y
Value—4 or 5 moist, 6 to 8 dry
Chroma—2 to 4 moist or dry
Texture—ashy loam, ashy silt loam, or ashy silty clay loam
Clay content—18 to 35 percent
Effervescence—slightly effervescent or strongly effervescent
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter

Taxadjunct Features

The Bridgewell soils in map units 233, 411, and 412 are a taxadjunct to the Bridgewell series because they do not have a calcareous reaction class, do not have a mollic epipedon, have a mixed mineralogy particle-size class instead of a glassy particle-size class, and are somewhat poorly drained due to episaturation instead of poorly drained due to endosaturation. These differences do not significantly affect use and management.

Bullump Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Colluvium and residuum derived from volcanic rock such as rhyolite, tuff, or basalt
Slope range: 30 to 50 percent
Elevation: 4,410 to 6,730 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Pachic Argixerolls

Typical Pedon

Bullump extremely gravelly loam in an area of rangeland; in the soil survey of Lake County, Oregon, Southern Part; in the northwest corner of the northwest corner of the northwest corner of section 35, T. 37 S., R. 22 E.; U.S. Geological Survey Drake Peak 7.5-minute topographic quadrangle; latitude and longitude data not available. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; dark brown (10YR 3/3) extremely gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common very fine vesicular pores; 45 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6); gradual wavy boundary.

A2—3 to 11 inches; dark brown (10YR 3/3) extremely gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine vesicular pores; 45 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6); clear wavy boundary.

Bt1—11 to 22 inches; brown (10YR 4/3) very gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; few very fine tubular pores; common faint clay films in pores and on faces of peds; 40 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.5); clear wavy boundary.

Bt2—22 to 42 inches; yellowish brown (10YR 5/6) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; few faint clay films in pores and on faces of peds; 55 percent gravel; slightly alkaline (pH 7.5); clear wavy boundary.

C—42 to 60 inches; yellowish brown (10YR 5/6) extremely gravelly loam, dark yellowish brown (10YR 4/6) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; few very fine tubular pores; 45 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.5).

Range in Characteristics

Mollic epipedon thickness: 20 to 40 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—25 to 35 percent; rock fragment content—35 to 55 percent, mainly gravel-sized fragments of mixed origin
Reaction: Neutral or slightly alkaline

A1 horizon
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—extremely gravelly loam
Clay content—15 to 25 percent
Rock fragment content—60 to 80 percent total, with 40 to 60 percent gravel, 10 to 20 percent cobbles, and 5 to 10 percent stones
Organic matter content—2 to 4 percent

A2 horizon
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—extremely gravelly loam or very gravelly loam
Clay content—18 to 26 percent
Rock fragment content—35 to 80 percent total, with 20 to 60 percent gravel, 5 to 15 percent cobbles, and 5 to 10 percent stones
Organic matter content—2 to 4 percent

Bt horizon
Hue—7.5YR or 10YR
Value—4 to 6 dry, 2 to 4 moist
Chroma—2 to 6 dry or moist
Texture—very gravelly loam or very gravelly clay loam
Clay content—25 to 35 percent
Rock fragment content—35 to 55 percent total, with 30 to 55 percent gravel, 0 to 15 percent cobbles, and 0 to 5 percent stones

C horizon
Texture—extremely gravelly loam or very gravelly loam
Clay content—15 to 25 percent

Rock fragment content—60 to 80 percent total, with 40 to 60 percent gravel, 10 to 20 percent cobbles, and 0 to 10 percent stones

Bunyard Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Lake terraces
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 1 percent
Elevation: 4,310 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Durinodic Natrargids

Typical Pedon

Bunyard ashy silt loam, 0 to 1 percent slopes, in an area of rangeland, in map unit 236, Lake County, Oregon; 5 miles east of the town of Silver Lake and south of State Highway 31; about 2,400 feet south and 1,700 feet east of the northwest corner of section 22, T. 28 S., R 15 E.; U.S. Geological Survey Tuff Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 7 minutes, 46.91 seconds north and longitude 120 degrees, 55 minutes, 58.72 seconds west; NAD 83. (When described on October 21, 1998, the soil was dry on the surface and slightly moist in the subsoil. Colors are for dry soil unless otherwise stated.)

AE—0 to 2 inches; light gray (10YR 7/1) ashy silt loam, grayish brown (10YR 5/2) moist; weak medium and thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; common uncoated sand grains on faces of peds; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Btn—2 to 6 inches; light brownish gray (10YR 6/2) ashy silty clay loam, dark grayish brown (10YR 4/2) moist; strong medium prismatic structure parting to strong very fine angular blocky; hard, firm, very sticky and moderately plastic; common very fine and fine roots; many very fine irregular pores; few faint clay films on faces of peds; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Btkn1—6 to 12 inches; pale brown (10YR 6/3) ashy clay loam, brown (10YR 4/3) moist; moderate very thin platy structure; hard, friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; many very fine interstitial pores and common tubular pores; few faint clay films on faces of peds; secondary carbonates segregated as threads lining pores; strongly effervescent; very strongly alkaline (pH 9.4); gradual smooth boundary.

Btkn2—12 to 16 inches; pale brown (10YR 6/3) ashy sandy clay loam, brown (10YR 4/3) moist; weak very thin platy structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; many very fine interstitial pores and common tubular pores; few faint clay films on faces of peds; secondary carbonates segregated as threads lining pores; strongly effervescent; very strongly alkaline (pH 9.2); gradual smooth boundary.

Bq1—16 to 24 inches; pale brown (10YR 6/3) ashy fine sandy loam, dark grayish brown (10YR 4/2) moist; strong very thin platy structure; hard, firm and brittle, slightly sticky and nonplastic; few very fine roots; common very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

Bq2—24 to 40 inches; light yellowish brown (2.5Y 6/3) ashy loamy very fine sand, dark brown (10YR 3/3) moist; massive; hard, firm and brittle, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

C—40 to 60 inches; light yellowish brown (2.5Y 6/3) ashy very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; strongly effervescent; strongly alkaline (pH 9.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to base of natric horizon: 10 to 18 inches
Depth to horizons with firm, brittle matrix: 10 to 18 inches
Particle-size control section: Clay content—27 to 35 percent; rock fragment content—0 to 5 percent
Volcanic glass content: 75 to 95 percent in the coarse silt to fine sand fractions

AE horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—1 or 2 dry or moist
Texture—ashy silt loam
Clay content—15 to 25 percent
Rock fragment content—0 to 5 percent
Organic matter content—0.5 to 1.0 percent
Reaction—moderately alkaline to very strongly alkaline (pH as high as 9.6)
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter

Btn horizon
Hue—10YR or 2.5Y
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy silty clay loam, ashy clay loam, or ashy clay
Clay content—35 to 45 percent
Rock fragment content—0 to 5 percent
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 80

Btkn horizon
Hue—10YR or 2.5Y
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy clay loam or ashy clay loam
Clay content—25 to 35 percent
Rock fragment content—0 to 5 percent
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 80
Calcium carbonate equivalent—1 to 5 percent

Bq horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy fine sandy loam, ashy very fine sandy loam, or ashy loamy very fine sand

Clay content—5 to 20 percent
Rock fragment content—0 to 5 percent
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 80

C horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy very fine sand, ashy very fine sandy loam, or ashy fine sandy loam
Clay content—5 to 20 percent
Rock fragment content—0 to 5 percent
Reaction—moderately alkaline to very strongly alkaline (pH as high as 9.6)
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 40
Other feature—subhorizons that consist of consolidated lacustrine deposits with 15 to 35 percent parachanners in some pedons

Cabinspring Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Mountains
Landform: Mountain slopes
Parent material: Volcanic ash, colluvium, and residuum derived from volcanic rock such as rhyodacite or rhyolite
Slope range: 20 to 50 percent
Elevation: 4,740 to 6,390 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Vitritorrandic Argixerolls

Typical Pedon

Cabinspring gravelly ashy loam in an area of rangeland, in map unit 237, Cabinspring-Chesebro-Hayespring complex, 20 to 50 percent slopes; Lake County, Oregon; on Glass Butte, about 1,400 feet north and 2,400 feet west of the southeast corner of section 27, T. 23 S., R. 22 E.; U.S. Geological Survey Glass Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 32 minutes, 43.33 seconds north and longitude 120 degrees, 3 minutes, 51.21 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated. When described on October 6, 2000, the soil was dry throughout.)

A1—0 to 8 inches; grayish brown (10YR 5/2) gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; moderate fine to coarse granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 25 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.
A2—8 to 12 inches; dark grayish brown (10YR 4/2) very gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many

very fine and fine roots; common very fine tubular pores; 30 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); gradual smooth boundary.

AB—12 to 24 inches; brown (10YR 5/3) very gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine and fine roots; common very fine tubular pores; 30 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.5); abrupt wavy boundary.

Bt1—24 to 30 inches; brown (10YR 5/3) very gravelly ashy clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; common very fine tubular pores; common faint clay films on faces of peds and lining pores; 40 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.5); abrupt wavy boundary.

2Bt2—30 to 36 inches; yellowish brown (10YR 5/4) extremely stony clay, brown (10YR 4/3) moist; moderate very fine angular blocky structure; hard, firm, very sticky and very plastic; few fine and very fine roots; common very fine tubular and irregular pores; many distinct brown (10YR 4/3) clay films on faces of peds and lining pores; 20 percent gravel, 10 percent cobbles, and 30 percent stones; slightly alkaline (pH 7.5); abrupt wavy boundary.

2R—36 inches; fractured rhyodacite; cracks are 6 to 8 inches apart and contain illuvial clay.

Range in Characteristics

Mollic epipedon thickness: 20 to 30 inches
Depth to bedrock: 30 to 40 inches
Particle-size control section: Clay content—35 to 45 percent (weighted average); rock fragment content—40 to 70 percent
Reaction: Neutral or slightly alkaline

A1 horizon
Chroma—2 or 3 dry or moist
Texture—gravelly ashy loam
Clay content—12 to 20 percent
Rock fragment content—15 to 35 percent total, with 15 to 35 percent gravel and 0 to 5 percent cobbles
Organic matter content—2 to 4 percent
Volcanic glass content—30 to 75 percent in the coarse silt to very fine sand fractions

A2 and AB horizons
Value—4 or 5 dry, 3 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly ashy loam
Clay content—12 to 20 percent
Rock fragment content—35 to 60 percent total, with 25 to 50 percent gravel and 3 to 10 percent cobbles
Organic matter content—2 to 4 percent
Volcanic glass content—30 to 75 percent in the coarse silt to very fine sand fractions

Bt1 horizon
Chroma—3 or 4 dry or moist
Texture—very gravelly ashy loam, very gravelly ashy clay loam, or very cobbly ashy clay loam
Clay content—24 to 35 percent
Rock fragment content—35 to 60 percent total, with 30 to 50 percent gravel and 5 to 20 percent cobbles
Volcanic glass content—30 to 75 percent in the coarse silt to fine sand fractions

2Bt2 horizon
Chroma—3 or 4 dry or moist
Texture—extremely stony clay or very stony clay
Clay content—40 to 50 percent
Rock fragment content—50 to 85 percent total, with 15 to 30 percent gravel, 5 to 20 percent cobbles, and 15 to 50 percent stones

Calderwood Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Hills and lava plateaus
Landform: Hillslopes and lava plateaus
Parent material: Colluvium derived from volcanic rock such as andesite or basalt
Slope range: 0 to 25 percent
Elevation: 4,250 to 5,230 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Xeric Haplocambids

Typical Pedon

Calderwood very gravelly sand in an area of rangeland, in map unit 238, Calderwood-McConnel complex, 0 to 20 percent slopes; Lake County, Oregon; about 600 feet west and 1,000 feet north of the southeast corner of section 8, T. 33 S., R. 25 E.; U.S. Geological Survey Rabbit Hills NE 7.5-minute topographic quadrangle; latitude 42 degrees, 43 minutes, 13 seconds north and longitude 119 degrees, 47 minutes, 12 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; brown (10YR 5/3) very gravelly sand, dark brown (10YR 3/3) moist; single grain; loose, very friable, nonsticky and nonplastic; many fine and few medium roots; 50 percent gravel; neutral (pH 7.2); clear smooth boundary.
Bw—2 to 10 inches; brown (10YR 5/3) very cobbly loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure parting to weak fine granular; slightly hard, very friable, moderately sticky and moderately plastic; common fine and few medium roots; few fine tubular pores; 10 percent gravel and 25 percent cobbles; slightly alkaline (pH 7.6); abrupt wavy boundary.
2R—10 inches; fractured andesite; strongly effervescent; common fine soft platelike carbonate masses in cracks.

Range in Characteristics

Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—20 to 35 percent; rock fragment content—35 to 50 percent
Reaction: Neutral to moderately alkaline

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly sand
Clay content—2 to 5 percent

Rock fragment content—35 to 55 percent total, with 35 to 55 percent gravel and 0 to 5 percent cobbles
Organic matter content—1 to 2 percent

Bw horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very cobbly loam or very cobbly clay loam
Clay content—20 to 35 percent
Rock fragment content—35 to 50 percent total, with 10 to 20 percent gravel, 20 to 25 percent cobbles, and 0 to 5 percent stones
Salinity—0 to 2 millimhos per centimeter

Camptank Series

Depth class: Deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Escarpments of lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 45 percent
Elevation: 4,810 to 5,360 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey over loamy-skeletal, smectitic over mixed, superactive, frigid Xeric Paleargids

Typical Pedon

Camptank extremely gravelly fine sandy loam in an area of rangeland; in map unit 300, Felcher-Camptank-Rock outcrop complex, 15 to 45 percent slopes; Lake County, Oregon; about 20 miles north of Lake Abert; about 900 feet north and 1,250 feet west of the southeast corner of section 28, T. 30 S., R. 20 E.; U.S. Geological Survey Diatomite Reservoir 7.5-minute topographic quadrangle; latitude 42 degrees, 56 minutes, 6 seconds north and longitude 120 degrees, 21 minutes, 0 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; light brownish gray (10YR 6/2) extremely gravelly fine sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common fine vesicular pores; 45 percent gravel, 15 percent cobbles, and 3 percent stones; moderately alkaline (pH 8.0); clear smooth boundary.
A2—3 to 6 inches; light brownish gray (10YR 6/2) sandy loam, brown (10YR 4/3) moist, moderate thin platy structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; common fine and few medium roots; few fine tubular pores; 12 percent gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.
Bt1—6 to 10 inches; brown (10YR 4/3) clay, dark yellowish brown (10YR 4/4) moist; moderate fine prismatic structure parting to weak fine angular blocky; very hard, very firm, very sticky and very plastic; few very fine and fine roots; few fine tubular pores; common distinct clay films on faces of peds; moderately alkaline (pH 8.0); gradual smooth boundary.

Bt2—10 to 17 inches; yellowish brown (10YR 5/4) clay loam, brown (10YR 4/3) moist; moderate medium platy structure parting to moderate fine angular blocky; hard, friable, moderately sticky and moderately plastic; common distinct clay films on faces of peds; 5 percent gravel; moderately alkaline (pH 8.2); clear smooth boundary.

2Bk—17 to 34 inches; brown (10YR 5/3) very stony fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium platy structure; hard, friable, slightly sticky and slightly plastic; few fine and medium roots; few fine tubular pores; 15 percent gravel, 10 percent cobbles, and 15 percent stones; secondary carbonates segregated as common medium coatings on faces of peds and bottom of rock fragments; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

2C—34 to 41 inches; pale brown (10YR 6/3) very gravelly fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 50 percent gravel; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

3R—41 inches; welded tuff.

Range in Characteristics

Depth to bedrock: 40 to 60 inches

Depth to horizons with skeletal material and identifiable secondary carbonates: 10 to 25 inches

Particle-size control section: Clay content—35 to 50 percent in the upper part and 10 to 18 percent in the contrasting lower part; rock fragment content—0 to 15 percent, mainly gravel, in the upper part and 35 to 60 percent in the contrasting lower part

Other features: An abrupt clay increase (absolute) of more than 20 percent is between the A2 and Bt1 horizons. A strongly contrasting particle-size class is within a depth of 40 inches. Lithology of fragments—volcanic rock such as welded tuff or basalt

A horizon

Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—extremely gravelly fine sandy loam (A1 horizon) and sandy loam (A2 horizon)
Clay content—10 to 18 percent
Rock fragment content—60 to 80 percent total in the A1 horizon and 0 to 15 percent total in the A2 horizon
Organic matter content—0.3 to 0.9 percent
Reaction—slightly alkaline or moderately alkaline

Bt horizon

Value—4 or 5 dry
Chroma—3 or 4 dry or moist
Texture—clay or clay loam
Clay content—35 to 50 percent
Rock fragment content—0 to 15 percent gravel

2Bk horizon

Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—very stony fine sandy loam or very stony sandy loam
Clay content—10 to 18 percent
Rock fragment content—35 to 60 percent total, with 10 to 35 percent gravel, 3 to 20 percent cobbles, and 5 to 20 percent stones
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—2 to 5 percent

Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 12

2C horizon
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—very gravelly fine sandy loam, very gravelly sandy loam, or very cobbly sandy loam
Clay content—7 to 15 percent
Rock fragment content—35 to 60 percent total, with 25 to 55 percent gravel, 0 to 15 percent cobbles, and 0 to 10 percent stones
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 12

Carryback Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus, including side slopes of dissected lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 30 percent
Elevation: 4,630 to 6,010 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Vertic Palexerolls

Typical Pedon

Carryback silty clay loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; about 5 miles southwest of Venator in the southeast corner of the northeast corner of the northeast corner of section 26, T. 26 S., R. 35 E.; U.S. Geological Survey Venator 7.5-minute topographic quadrangle; latitude 43 degrees, 17 minutes, 19 seconds north and longitude 118 degrees, 22 minutes, 9 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; pale brown (10YR 6/3) silty clay loam, dark brown (10YR 3/3) moist; weak thin platy structure; slightly hard, friable, moderately sticky and moderately plastic; many fine roots; many very fine vesicular pores; 5 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.
A2—3 to 7 inches; brown (7.5YR 5/2) silty clay loam, dark brown (7.5YR 3/2) moist; moderate fine granular structure; slightly hard, friable, moderately sticky and moderately plastic; many fine roots; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.
2Bt1—7 to 11 inches; brown (7.5YR 5/2) clay, dark brown (7.5YR 3/2) moist; moderate fine and very fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many fine roots; few faint clay films; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.
2Bt2—11 to 17 inches; brown (7.5YR 5/2) clay, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure; hard, firm, moderately sticky and

moderately plastic; many fine roots; many very fine tubular pores; few faint clay films; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); abrupt smooth boundary.

2Bt3—17 to 24 inches; brown (7.5YR 5/4) clay, brown (7.5YR 4/4) moist; strong fine and medium prismatic structure parting to strong fine blocky; hard, firm, moderately sticky and moderately plastic; common fine roots; common very fine tubular pores; many faint clay films; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); clear wavy boundary.

2R—24 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 19 inches

Depth to bedrock: 20 to 40 inches

Particle-size control section: Clay content—40 to 60 percent; rock fragment content—0 to 25 percent total, with 0 to 25 percent gravel and 0 to 10 percent cobbles

Other feature: A clay increase (absolute) of 15 to 25 percent is between the A and 2Bt horizons.

A1 horizon

Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loam, very stony clay loam, extremely cobbly clay loam, or very stony loam
Clay content—15 to 35 percent
Rock fragment content—5 to 80 percent total, with 5 to 40 percent gravel, 3 to 70 percent cobbles, and 3 to 45 percent stones
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

A2 horizon

Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 moist
Chroma—2 or 3 dry or moist
Texture—silty clay loam, clay loam, or loam
Clay content—20 to 35 percent
Rock fragment content—0 to 15 percent total, with 0 to 15 percent gravel, 0 to 5 percent cobbles, and 0 to 3 percent stones
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

2Bt horizon

Hue—10YR or 7.5YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—silty clay, clay, gravelly clay, or gravelly silty clay
Clay content—40 to 60 percent
Rock fragment content—0 to 25 percent total, with 0 to 25 percent gravel and 0 to 10 percent cobbles
Reaction—slightly alkaline

3C horizon (where present)

Hue—7.5YR
Value—5 or 6 dry, 4 moist
Chroma—3 or 4 dry, 4 moist

Texture—loam, silty clay loam, or silt loam
Clay content—20 to 30 percent
Rock fragment content—0 to 10 percent total, with 0 to 10 percent gravel and 0 to 5 percent cobbles
Reaction—moderately alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Notes

The modal pedon was taken from the soil survey of Harney County Area, Oregon. This pedon has a surface texture that is not representative of the range in characteristics of the Carryback soils in this survey area.

Carvix Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins and lava plateaus
Landform: High stream terraces adjacent to intermittent streams
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 0 to 8 percent
Elevation: 4,300 to 5,600 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine-loamy, mixed, superactive, frigid Aridic Haploxerolls

Typical Pedon

Carvix silt loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; about 0.5 mile north of Zoglmann Butte, in Dick Miller Canyon; about 4,830 feet west and 1,800 feet south of the northeast corner of section 17, T. 23 S., R. 27 E.; U.S. Geological Survey Riley topographic 7.5-minute quadrangle; latitude 43 degrees, 34 minutes, 42 seconds north and longitude 119 degrees, 30 minutes, 46 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 6 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak medium and thick platy structure; soft, very friable, nonsticky and slightly plastic; many fine and few very fine and medium roots; few very fine tubular pores; 5 percent gravel; disseminated lime on faces of peds; strongly effervescent; slightly alkaline (pH 7.8); clear wavy boundary.
BA—6 to 19 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate fine, medium, and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine and few very fine roots; common very fine irregular pores; 5 percent gravel; moderately alkaline (pH 8.0); gradual smooth boundary.
Bt1—19 to 39 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; many very fine and fine irregular pores; few faint clay films lining pores; slightly alkaline (pH 7.6); clear smooth boundary.
Bt2—39 to 60 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse subangular blocky structure; slightly hard,

friable, moderately sticky and moderately plastic; few very fine and fine roots; common very fine irregular pores; few faint clay films lining pores; slightly alkaline (pH 7.6).

Range in Characteristics

Mollic epipedon thickness: 10 to 20 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—18 to 30 percent; rock fragment content—0 to 10 percent

A horizon
Value—5 dry, 3 moist
Chroma—3 dry, 2 or 3 moist
Texture—silt loam
Clay content—15 to 27 percent
Rock fragment content—0 to 10 percent gravel
Organic matter content—1 to 2 percent
Reaction—neutral to moderately alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 percent

BA horizon
Value—5 dry, 3 moist
Chroma—3 dry, 2 or 3 moist
Texture—silt loam or loam
Clay content—15 to 27 percent
Rock fragment content—0 to 10 percent gravel
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 percent

Bt horizon
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—loam or clay loam
Clay content—18 to 30 percent
Rock fragment content—0 to 10 percent gravel
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 percent
Other feature—marginal clay increase considered insufficient for argillic horizon

Catlow Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Beach and lake terraces
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 1 to 15 percent
Elevation: 4,280 to 5,200 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Durinodic Xeric Haplocambids

Typical Pedon

Catlow very gravelly sandy loam in an area of rangeland, in map unit 244, Catlow-Davey complex, 2 to 30 percent slopes; Lake County, Oregon; on the northeast end of Rabbit Basin; about 2,600 feet west and 1,150 feet north of the southeast corner of section 3, T. 34 S., R. 24 E.; U.S. Geological Survey Rabbit Hills NE 7.5-minute topographic quadrangle; latitude 42 degrees, 38 minutes, 49 seconds north and longitude 119 degrees, 52 minutes, 23 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine vesicular and irregular pores; 35 percent gravel, 10 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

AB—3 to 9 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; common fine roots; 15 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

Bw—9 to 21 inches; brown (10YR 5/3) extremely cobbly fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; common fine roots; common very fine and fine tubular pores; 35 percent gravel, 20 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

2Bq—21 to 30 inches; brown (10YR 5/3) extremely gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure; hard, firm and brittle, slightly sticky and slightly plastic; few fine roots; common very fine and fine tubular pores; 60 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

2C—30 to 60 inches; light brown (10YR 6/3) extremely gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine roots; common very fine and fine tubular pores; 50 percent gravel, 15 percent cobbles, and 5 percent stones; slightly effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—7 to 18 percent by weighted average; rock fragment content—50 to 80 percent by weighted average
Reaction: Slightly alkaline or moderately alkaline
Depth to the hard, firm, brittle layer (Bq horizon): 15 to 30 inches
Depth to secondary carbonates (where present): 15 to 30 inches
Organic matter content: Less than 0.5 percent throughout

A horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—gravelly loamy sand, gravelly loam, gravelly sandy loam, or very gravelly sandy loam
Clay content—2 to 20 percent
Organic matter content—0.2 to 0.5 percent

AB and Bw horizons
Value—4 to 6 dry, 3 to 5 moist
Chroma—1 to 3 dry or moist

Texture—very stony sandy clay loam, extremely cobbly fine sandy loam, very gravelly sandy loam, gravelly sandy loam, or very gravelly sandy clay loam
Clay content—10 to 25 percent
Rock fragment content—15 to 80 percent total, with 15 to 50 percent gravel, 5 to 20 percent cobbles, and 0 to 10 percent stones

2Bq horizon
Value—5 or 6 dry, 3 to 5 moist
Texture—extremely cobbly loamy coarse sand, very cobbly sandy loam, very cobbly loamy sand, very gravelly sandy loam, or extremely gravelly sandy loam
Clay content—5 to 15 percent
Rock fragment content—35 to 90 percent total, with 25 to 60 percent gravel, 5 to 20 percent cobbles, and 0 to 10 percent stones
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Effervescence—noneffervescent or slightly effervescent

2C horizon
Texture—extremely cobbly loamy coarse sand, extremely cobbly coarse sand, very gravelly sand, extremely gravelly sand, or extremely gravelly sandy loam
Clay content—3 to 10 percent
Rock fragment content—50 to 90 percent total, with 25 to 50 percent gravel, 15 to 30 percent cobbles, and 0 to 10 percent stones
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Effervescence—noneffervescent or slightly effervescent

Catnapp Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Mixed loess and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Elevation: 4,990 to 5,750 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Xeric Natrargids

Typical Pedon

Catnapp extremely cobbly loam, 2 to 15 percent slopes, in an area of rangeland; in map unit 245, Lake County, Oregon; about 2,200 feet south and 500 feet west of the northeast corner of section 26, T. 29 S., R. 19 E.; U.S. Geological Survey Sheep Rock 7.5-minute topographic quadrangle; latitude 43 degrees, 1 minute, 40.8 seconds north and longitude 120 degrees, 25 minutes, 29.8 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 5 inches; grayish brown (10YR 5/2) extremely cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium and fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine interstitial pores; 40 percent gravel, 30 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.0); abrupt smooth boundary.

AE—5 to 7 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thick platy structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; common very fine and fine tubular pores; 10 percent gravel; moderately alkaline (pH 8.0); abrupt smooth boundary.

Btn1—7 to 9 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong fine prismatic structure parting to strong fine angular blocky; hard, firm, very sticky and very plastic; common very fine and fine roots; common very fine tubular pores; many prominent dark yellowish brown (10YR 4/4) clay films on faces of peds; interfingers of AE material in upper part of horizon; moderately alkaline (pH 8.2); clear smooth boundary.

Btn2—9 to 14 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, very sticky and very plastic; common very fine and fine roots; few very fine tubular pores; few prominent dark yellowish brown (10YR 4/4) clay films on faces of peds; strongly alkaline (pH 8.6); clear smooth boundary.

Btkn—14 to 25 inches; light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure; hard, friable, very sticky and very plastic; common very fine roots; common fine tubular pores; few prominent yellowish brown (10YR 5/4) clay films on faces of peds; secondary carbonates segregated in filaments; violently effervescent; strongly alkaline (pH 8.6); abrupt irregular boundary.

R—25 inches; basalt.

Range in Characteristics

Depth to bedrock: 20 to 30 inches
Particle-size control section: Clay content—35 to 50 percent; rock fragment content—0 to 30 percent
Depth to secondary carbonates: 8 to 18 inches

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Clay content—10 to 18 percent
Texture—extremely cobbly loam
Rock fragment content—60 to 80 percent total, with 35 to 50 percent gravel, 20 to 45 percent cobbles, and 0 to 10 percent stones
Organic matter content—0.5 to 1.0 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 5

AE horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—fine sandy loam or loam
Clay content—14 to 24 percent
Rock fragment content—5 to 15 percent total, with 5 to 10 percent gravel and 0 to 5 percent cobbles
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 5

Btn horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist

Texture—cobbly clay, clay loam, or clay
Clay content—35 to 50 percent
Rock fragment content—0 to 30 percent total, with 0 to 10 percent gravel, 0 to 15 percent cobbles, and 0 to 3 percent stones
Reaction—moderately alkaline to very strongly alkaline
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

Btkn horizon
Hue—10YR or 7.5YR
Chroma—3 or 4 dry or moist
Texture—cobbly clay, clay loam, or clay
Clay content—35 to 50 percent
Rock fragment content—0 to 30 percent total, with 0 to 10 percent gravel, 0 to 15 percent cobbles, and 0 to 3 percent stones
Reaction—strongly alkaline or very strongly alkaline
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

Chancelakes Series

Depth class: Very deep to bedrock
Drainage class: Poorly drained
Landscape: Lava plateaus
Landform: Depressions and drainageways
Parent material: Lacustrine deposits derived from volcanic rock such as basalt and tuff with an influence of volcanic ash
Slope range: 0 to 2 percent
Elevation: 4,350 to 5,170 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Xeric Epiaquerts

Typical Pedon

Chancelakes ashy silt loam in an area of rangeland, in map unit 246, Chancelakes-Silverash complex, 0 to 1 percent slopes; Lake County, Oregon; in Last Chance Lake, about 30 miles north of the village of Christmas Valley; about 2,500 feet south and 2,600 feet west of the northeast corner of section 3, T. 23 S., R. 18 E.; U.S. Geological Survey Last Chance Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 36 minutes, 33 seconds north and longitude 120 degrees, 32 minutes, 38 seconds west; NAD 27. (Colors are for moist soil unless otherwise stated.)

AE—0 to 1 inch; dark grayish brown (10YR 4/2) ashy silt loam, light gray (10YR 7/1) dry; moderate thick platy structure parting to strong very thin platy; extremely hard, very firm, slightly sticky and slightly plastic; few very fine and common fine roots; few very fine and fine vesicular pores; moderately alkaline (pH 8.1); abrupt smooth boundary.

Bt—1 to 10 inches; dark grayish brown (10YR 4/2) clay, brown (10YR 5/3) dry; strong fine prismatic structure parting to strong fine angular blocky; hard, firm, moderately sticky and very plastic; few very fine and fine roots; few very fine and fine tubular pores; common faint and few distinct clay films on faces of peds; few fine faint brown (10YR 4/3) masses of iron accumulation throughout; moderately alkaline (pH 8.4); clear smooth boundary.

Btk1—10 to 20 inches; dark grayish brown (10YR 4/2) clay, grayish brown (10YR 5/2) dry; moderate medium prismatic structure parting to strong fine and medium angular blocky; slightly hard, firm, moderately sticky and very plastic; few very fine roots; few very fine tubular pores; common faint and few distinct clay films on faces of peds; secondary carbonates segregated as 2 percent coarse coatings on faces of peds; slightly effervescent; strongly alkaline (pH 8.5); gradual smooth boundary.

Btk2—20 to 29 inches; olive brown (2.5Y 4/3) clay, light brownish gray (2.5Y 6/2) dry; moderate medium subangular blocky structure with few wedge-shaped peds; slightly hard, very friable, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; common faint clay films on faces of peds; secondary carbonates segregated as 6 percent fine to coarse coatings on faces of peds; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Btkss1—29 to 44 inches; dark grayish brown (2.5Y 4/2) clay loam, light brownish gray (2.5Y 6/2) dry; weak coarse prismatic structure parting to strong fine and medium angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; many intersecting slickensides; common pressure cutans on faces of peds; 25 percent fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation throughout; secondary carbonates segregated as common (6 percent) medium and coarse coatings on faces of peds; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Btkss2—44 to 58 inches; dark brown (10YR 3/3) clay, pale brown (10YR 6/3) dry; strong fine angular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine and fine tubular pores; common intersecting slickensides; common pressure cutans on faces of peds; common medium prominent light yellowish brown (2.5Y 6/4) masses of iron accumulation and common faint very dark brown (7.5YR 2.5/2) masses of manganese accumulation throughout; secondary carbonates segregated as many (15 percent) coarse masses; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

B′tk—58 to 63 inches; dark grayish brown (10YR 4/2) and very dark brown (10YR 2/2) ashy sandy clay loam, light brownish gray (10YR 6/2) and dark grayish brown (10YR 4/2) dry; strong medium platy structure parting to moderate medium subangular blocky; slightly hard, very friable, moderately sticky and moderately plastic; few very fine roots; common very fine and few fine tubular pores; common prominent clay films on faces of peds; few medium prominent light yellowish brown (2.5Y 6/4) masses of iron accumulation throughout; secondary carbonates segregated as few fine coatings on faces of peds; noneffervescent matrix and strongly effervescent coatings; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: More than 60 inches

Particle-size control section: Clay content—35 to 60 percent

Depth to secondary carbonates: 6 to 13 inches

Depth to aquic conditions: 0 to 10 inches

Depth to water table: At the surface to a depth of 10 inches at some time during January through May (perched); 29 to 60 inches below the surface during March through June (apparent)

Ponding: Frequent; as much as 12 inches above the surface at some time during January through May

Other features: An abrupt clay increase (absolute) of more than 20 percent is between the AE and Bt horizon. Cracking to the soil surface occurs during summer; wide cracks become narrower as depth increases. The surface is not self mulching.

AE horizon
Value—6 or 7 dry, 4 or 5 moist
Chroma—1 or 2 moist or dry
Texture—ashy silt loam
Clay content—8 to 20 percent
Organic matter content—0.1 to 1.0 percent
Reaction—slightly alkaline or moderately alkaline
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions
Redoximorphic features—depletions of iron and/or clay evident in low-chroma matrix

Bt horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry
Chroma—2 to 4 moist or dry
Texture—clay, clay loam, or silty clay
Clay content—35 to 45 percent
Reaction—slightly alkaline to strongly alkaline
Redoximorphic features—few faint concentrations of iron

Btk horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry
Chroma—2 to 4 moist or dry
Texture—clay, clay loam, or silty clay loam
Clay content—35 to 55 percent
Reaction—moderately alkaline or strongly alkaline
Identifiable secondary carbonates—fine to coarse masses or coatings on faces of peds
Calcium carbonate equivalent—2 to 5 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Btkss horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry
Chroma—2 to 4 moist or dry
Texture—clay, clay loam, or silty clay
Clay content—35 to 60 percent
Vertic features—common or many intersecting slickensides on top and bottom of prisms or on wedge-shaped peds, pressure cutans on vertical faces of prismatic and angular blocky peds
Redoximorphic features—concentrations occur as masses of iron and/or manganese accumulation, iron depletions in some pedons
Reaction—moderately alkaline or strongly alkaline
Identifiable secondary carbonates—fine to coarse masses or coatings on faces of peds
Calcium carbonate equivalent—2 to 5 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

B′tk horizon (where present)
Hue—10YR or 2.5Y
Texture—ashy sandy clay loam or ashy clay loam

Clay content—30 to 40 percent
Volcanic glass content—20 to 40 percent in coarse silt to fine sand fractions
Redoximorphic features—concentrations occur as masses of iron and/or manganese accumulations, depletions of iron evident in low-chroma matrix
Reaction—moderately alkaline or strongly alkaline
Identifiable secondary carbonates—few fine or medium masses or coatings on faces of peds
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Chen Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Hills and mountains
Landform: Hillslopes and mountain slopes
Parent material: Colluvium and residuum derived from volcanic rock such as basalt
Slope range: 15 to 50 percent
Elevation: 5,100 to 6,830 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey-skeletal, smectitic, frigid Lithic Argixerolls

Typical Pedon

Chen very cobbly loam in an area of rangeland, in map unit 247, Chen-Erakatak-Lambring complex, 15 to 50 percent slopes; Lake County, Oregon; about 1,500 feet east and 2,000 feet south of the northwest corner of section 31, T. 34 S., R. 23 E.; U.S. Geological Survey Cooper Draw 7.5-minute topographic quadrangle; latitude 42 degrees, 34 minutes, 45 seconds north and longitude 120 degrees, 3 minutes, 19 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine and medium interstitial and tubular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear smooth boundary.

A2—2 to 6 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine and medium interstitial and tubular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.2); abrupt smooth boundary.

Bt1—6 to 12 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; strong medium subangular blocky structure parting to weak fine angular blocky; hard, firm, moderately sticky and moderately plastic; many very fine and fine roots; common fine interstitial and tubular pores; common faint and few distinct continuous clay films on faces of peds; 20 percent gravel, 20 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—12 to 17 inches; pale brown (10YR 6/3) very cobbly clay, brown (10YR 4/3) moist; strong medium angular blocky structure parting to weak fine angular blocky; hard, firm, moderately sticky and moderately plastic; common fine and medium roots; few fine interstitial and tubular pores; 20 percent gravel, 15 percent cobbles, and 10 percent stones; common distinct continuous clay films on faces of peds; slightly alkaline (pH 7.4); abrupt smooth boundary.

R—17 inches; slightly fractured basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 17 inches
Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—38 to 55 percent (weighted average); rock fragment content—40 to 65 percent
Reaction: Neutral or slightly alkaline
Other feature: An abrupt clay increase of 15 percent or more absolute is between the A2 and Bt horizons.

A1 horizon
Value—4 to 6 dry (6 dry only in thin A1 horizons in some pedons and 5 dry in upper 7 inches when mixed), 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loam
Clay content—10 to 27 percent
Rock fragment content—35 to 60 percent total, with 15 to 30 percent gravel, 15 to 25 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 3 percent

A2 horizon
Value—5 or 6 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loam
Clay content—10 to 26 percent
Rock fragment content—35 to 60 percent total, with 15 to 30 percent gravel, 15 to 25 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 2 percent

Bt horizon
Hue—7.5YR or 10YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly clay loam, extremely cobbly clay loam, very gravelly clay, extremely gravelly clay, very cobbly clay, or extremely cobbly clay
Clay content—38 to 55 percent
Rock fragment content—40 to 65 percent total, with 15 to 40 percent gravel, 15 to 30 percent cobbles, and 5 to 10 percent stones

Taxadjunct Features

The Chen soil in map unit 408 is a taxadjunct to the Chen series. The Chen soils in this unit do not have an argillic horizon, have a loamy-skeletal particle-size class, are deep to bedrock, and have a mean annual precipitation of 8 to 12 inches. The soil, however, is correlated to the same ecological site as the modal Chen series.

Chesebro Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Hills and mountains
Landform: Hillslopes and mountain slopes
Parent material: Volcanic ashflow and colluvium derived from volcanic rock such as rhyodacite or rhyolite

Slope range: 15 to 65 percent
Elevation: 4,440 to 6,390 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Vitrandic Argixerolls

Typical Pedon

Chesebro very cobbly ashy loam in an area of rangeland, in map unit 237, Cabinspring-Chesebro-Hayespring complex, 20 to 50 percent slopes; Lake County, Oregon; about 1.5 miles northeast of the radio tower on the summit of Glass Butte; about 1,200 feet north and 1,500 feet west of the southeast corner of section 15, T. 23 S., R. 22 E.; U.S. Geological Survey Glass Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 34 minutes, 27.6 seconds north and longitude 120 degrees, 3 minutes, 35.7 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; dark grayish brown (10YR 4/2) very cobbly ashy loam, very dark brown (10YR 2/2) moist; weak fine and very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine interstitial pores; 15 percent fine gravel, 15 percent coarse gravel, 15 percent cobbles, 5 percent stones, and 5 percent boulders; neutral (pH 6.6); clear smooth boundary.

A2—4 to 9 inches; dark grayish brown (10YR 4/2) very stony ashy loam, very dark brown (10YR 2/2) moist; weak coarse and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine interstitial pores and common very fine tubular pores; 10 percent fine gravel, 15 percent coarse gravel, 15 percent cobbles, and 15 percent stones; neutral (pH 6.6); clear wavy boundary.

AB—9 to 24 inches; brown (10YR 5/3) very cobbly ashy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to moderate coarse and medium granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 10 percent fine gravel, 15 percent coarse gravel, 15 percent cobbles, and 10 percent stones; neutral (pH 6.8); gradual smooth boundary.

Bt1—24 to 36 inches; yellowish brown (10YR 5/4) very gravelly ashy loam, dark yellowish brown (10YR 3/4) moist; weak coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, very friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; many very fine tubular pores; 10 percent fine gravel, 30 percent coarse gravel, 10 percent cobbles, and 5 percent stones; few distinct clay films on faces of peds; neutral (pH 7.0); gradual smooth boundary.

Bt2—36 to 60 inches; yellowish brown (10YR 5/4) very cobbly ashy loam, dark yellowish brown (10YR 3/4) moist; weak medium and fine subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; few very fine and fine roots; many very fine tubular pores; 10 percent fine gravel, 10 percent coarse gravel, 15 percent cobbles, and 5 percent stones; few distinct clay films on faces of peds; neutral (pH 7.2)

Range in Characteristics

Mollic epipedon thickness: 20 to 30 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—22 to 32 percent; rock fragment content—40 to 60 percent

Volcanic glass content: 30 to 75 percent in the coarse silt to fine sand fractions

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly ashy loam
Clay content—12 to 20 percent
Rock fragment content—35 to 55 percent total, with 20 to 40 percent gravel, 15 to 20 percent cobbles, 0 to 5 percent stones, and 0 to 5 percent boulders
Organic matter content—2 to 4 percent

A2 and AB horizons
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very stony ashy loam or very cobbly ashy loam
Clay content—12 to 20 percent
Rock fragment content—35 to 65 percent total, with 10 to 35 percent gravel, 5 to 50 percent cobbles, and 0 to 20 percent stones
Organic matter content—2 to 4 percent
Reaction—slightly alkaline or neutral

Bt horizon
Value—4 or 5 dry, 2 to 4 moist
Chroma—2 to 4 dry or moist
Texture—very gravelly ashy loam, very cobbly ashy clay loam, very cobbly ashy loam, or very gravelly ashy sandy clay loam
Clay content—22 to 32 percent
Rock fragment content—40 to 60 percent total, with 10 to 50 percent gravel, 5 to 45 percent cobbles, and 0 to 10 percent stones
Reaction—slightly alkaline or neutral

Chinarise Series

Depth class: Very deep to bedrock
Drainage class: Somewhat poorly drained
Landscape: Basins and valleys
Landform: Lake terraces and stream terraces
Parent material: Alluvium derived from mixed volcanic rock and volcanic ash
Slope range: 1 to 4 percent
Elevation: 4,300 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitrandic Haploxerolls

Typical Pedon

Chinarise ashy silt loam in an area of rangeland, in map unit 509, Paulina-Chinarise complex, 0 to 4 percent slopes; Lake County, Oregon; in Paulina Marsh, about 5 miles north-northeast of the community of Silver Lake; about 300 feet north and 400 feet east of the southwest corner of section 26, T. 27 S., R. 14 E.; U.S. Geological Survey Silver Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 11 minutes, 33.7 seconds north and longitude 121 degrees, 2 minutes, 1.9 seconds west; NAD 27. (Colors are for moist soil unless otherwise stated.)

An—0 to 5 inches; very dark grayish brown (10YR 3/2) ashy silt loam, grayish brown (10YR 5/2) dry; weak thin and medium platy structure; hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many very fine tubular pores; strongly effervescent; about 30 percent sand-sized pumice grains; very strongly alkaline (pH 9.5); clear smooth boundary.

Bn1—5 to 9 inches; very dark grayish brown (10YR 3/2) ashy silt loam, gray (10YR 5/1) dry; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; many very fine and common fine and medium roots; many fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); gradual smooth boundary.

Bn2—9 to 18 inches; very dark grayish brown (10YR 3/2) ashy silt loam, gray (10YR 5/1) dry; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; many very fine and common fine and medium roots; many fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.

Bw1—18 to 29 inches; very dark grayish brown (10YR 3/2) ashy loam, gray (10YR 5/1) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many fine and medium tubular pores; moderately alkaline (pH 7.9); clear smooth boundary.

Bw2—29 to 50 inches; dark brown (10YR 3/3) ashy fine sandy loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine and fine interstitial pores; few fine faint masses of iron accumulation that are dark yellowish brown (10YR 4/4) moist; slightly alkaline (pH 7.8); clear smooth boundary.

C—50 to 60 inches; dark grayish brown (10YR 4/2) ashy fine sandy loam, light gray (10YR 7/2) dry; massive; slightly hard, friable, nonsticky and nonplastic; many very fine and fine interstitial pores; common fine faint brown (10YR 5/3) masses of iron accumulation; slightly alkaline (pH 7.8).

Range in Characteristics

Mollic epipedon thickness: 7 to 19 inches, includes the Bn horizon
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—12 to 27 percent (weighted average)
Volcanic glass content: 40 to 90 percent in coarse silt to fine sand fractions
Depth to water table: 24 to 40 inches below the surface at some time during February through July
Depth to redoximorphic features: 25 to 35 inches

An horizon
Hue—10YR or 2.5Y
Value—2 or 3 moist, 5 or 6 dry
Chroma—1 to 3 moist or dry
Texture—ashy silt loam
Clay content—10 to 25 percent
Organic matter content—2 to 4 percent
Reaction—very strongly alkaline
Calcium carbonate equivalent—2 to 5 percent
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

Bn horizon
Value—2 or 3 moist, 5 to 7 dry
Chroma—1 to 3 moist or dry
Texture—ashy loam, ashy silt loam, or ashy silty clay loam
Clay content—12 to 30 percent
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)

Calcium carbonate equivalent—2 to 5 percent
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

Bw horizon
Hue—10YR or 2.5Y
Value—3 or 4 moist, 5 to 7 dry
Chroma—1 to 3 moist or dry
Texture—ashy loam, ashy silt loam, ashy sandy loam, or ashy fine sandy loam
Clay content—12 to 27 percent
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2
Redoximorphic features—concentrations occur as masses of iron accumulation

C horizon
Hue—10YR or 2.5Y
Value—3 or 4 moist, 5 to 7 dry
Chroma—1 to 3 moist or dry
Texture—ashy fine sandy loam, ashy loamy fine sand, ashy sandy loam, or ashy loam
Clay content—10 to 24 percent
Reaction—slightly alkaline or moderately alkaline
Redoximorphic features—concentrations occur as masses of iron accumulation

Cinderfall Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Lava plateaus
Landform: Lava plains
Parent material: Volcanic ash over basaltic cinders
Slope range: 1 to 8 percent
Elevation: 4,330 to 4,550 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Vitritorrandic Haploxerolls

Typical Pedon

Cinderfall ashy loamy sand in an area of rangeland, in map unit 249, Cinderfall-Fort Rock-Kunceider complex, 1 to 8 percent slopes; Lake County, Oregon; about 1.0 mile west and 0.5 mile south of the town of Fort Rock; about 160 feet east and 3,427 feet south of the northwest corner of section 4, T. 26 S., R. 14 E.; U.S. Geological Survey Fort Rock 7.5-minute topographic quadrangle; latitude 43 degrees, 20 minutes, 48 seconds north and longitude 121 degrees, 4 minutes, 22 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 5/3) ashy loamy sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, very friable, nonsticky and nonplastic; few medium and many fine and very fine roots; many fine and very fine interstitial pores; about 35 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized pumiceous ash grains; 5 percent gravel; neutral (pH 7.0); clear smooth boundary.

A2—3 to 10 inches; brown (10YR 5/3) ashy loamy sand, dark brown (10YR 3/3) moist; single grain; loose, very friable, nonsticky and nonplastic; common very fine and few fine roots; common fine and very fine interstitial pores; about 45 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized, pumiceous ash grains; 5 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

A3—10 to 21 inches; brown (10YR 5/3) ashy loamy sand, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine interstitial pores; 50 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized, pumiceous ash grains; 10 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.

2Ckq—21 to 62 inches; brown (10YR 5/3) extremely gravelly ashy very fine sandy loam, dark yellowish brown (10YR 3/4) moist; massive; soft, slightly sticky and nonplastic; common very fine and few fine roots; few very fine interstitial pores; 20 percent very pale brown (10YR 7/3), medium and coarse, sand-sized, pumiceous ash grains; 65 percent gravel and 15 percent cobbles; few fine coatings of opaline silica on top of rock fragments; very slightly effervescent; secondary carbonates occur as common fine coatings on the top and bottom of rock fragments; slightly alkaline (pH 7.8); clear wavy boundary.

2Ck—62 to 68 inches; light brownish gray (10YR 6/2) extremely gravelly ashy very fine sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common very fine roots; common very fine interstitial pores; about 35 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized pumice grains; 70 percent gravel and 15 percent cobbles; secondary carbonates occur as common fine coatings on rock fragments; violently effervescent; moderately alkaline (pH 8.3).

Range in Characteristics

Mollic epipedon thickness: 10 to 15 inches, includes A1 and A2 horizons
Depth to bedrock: More than 60 inches
Depth to contrasting texture: 20 to 30 inches
Particle-size control section: Clay content—0 to 15 percent (weighted average); rock fragment content—35 to 60 percent (weighted average)
Depth to horizons with identifiable secondary carbonates: 20 to 30 inches
Volcanic glass content: 30 to 60 percent in coarse silt to fine sand fractions
Other feature: Lithology of fragments—basaltic cinders

A horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand
Clay content—5 to 12 percent
Rock fragment content—5 to 10 percent gravel
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

2Ckq horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—extremely gravelly ashy very fine sandy loam, extremely gravelly ashy fine sandy loam, extremely gravelly ashy sandy loam, extremely cobbly ashy fine sandy loam, or extremely cobbly ashy sandy loam
Clay content—10 to 15 percent
Rock fragment content—60 to 90 percent total, with 50 to 65 percent gravel and 10 to 30 percent cobbles

Reaction—slightly alkaline to strongly alkaline
Identifiable secondary carbonates and silica—common fine coatings on top and bottom of rock fragments
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—1 to 12

2Ck horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—extremely gravelly ashy very fine sand
Clay content—1 to 5 percent
Rock fragment content—60 to 90 percent total, with 50 to 75 percent gravel and 10 to 30 percent cobbles
Reaction—moderately alkaline or strongly alkaline
Identifiable secondary carbonates—common fine coatings on top and bottom of rock fragments
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—1 to 12

Clamp Series

Depth class: Very shallow or shallow to bedrock
Drainage class: Well drained
Landscape: Mountains
Landform: Mountain slopes
Parent material: Colluvium derived from volcanic rock such as basalt
Slope range: 5 to 20 percent
Elevation: 5,800 to 6,200 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 30 to 60 days

Taxonomic classification: Loamy-skeletal, mixed, superactive Lithic Haplocryolls

Typical Pedon

Clamp very stony clay loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; about 5.7 miles south of Willow Butte and 1.3 miles west of Willow Creek; in the southwest 1/4 northeast 1/4 of section 3, T. 40 S, R. 38 E.; U.S. Geological Survey Little Whitehorse Creek 7.5-minute topographic quadrangle; latitude and longitude not available. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) very stony clay loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine irregular pores; 20 percent gravel, 15 percent cobbles, and 20 percent stones; slightly alkaline (pH 7.5); clear smooth boundary.
A2—3 to 8 inches; grayish brown (10YR 5/2) very cobbly clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine irregular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.5); gradual wavy boundary.
A3—8 to 12 inches; grayish brown (10YR 5/2) very cobbly clay loam, dark brown (10YR 3/3) moist; massive; slightly hard, firm, slightly sticky and slightly plastic;

many very fine and fine roots; many very fine and fine irregular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.5); abrupt irregular boundary.

2R—12 inches; fractured basalt.

Range in Characteristics

Mollic epipedon thickness: 4 to 14 inches
Depth to bedrock: 4 to 14 inches
Particle-size control section: Clay content—27 to 35 percent; rock fragment content—35 to 60 percent
Reaction: Neutral or slightly alkaline

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very stony clay loam
Clay content—27 to 35 percent
Rock fragment content—35 to 60 percent total, with 10 to 25 percent gravel, 10 to 20 percent cobbles, and 15 to 25 percent stones
Organic matter content—2 to 4 percent

A2 and A3 horizons
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly clay loam
Clay content—27 to 35 percent
Rock fragment content—35 to 60 percent total, with 10 to 30 percent gravel, 15 to 25 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 3 percent

Cleavage Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Residuum derived from volcanic rock such as welded ashflow tuff
Slope range: 2 to 15 percent
Elevation: 4,680 to 6,120 feet
Mean annual precipitation: 11 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Lithic Argixerolls

Typical Pedon

Cleavage very cobbly loam in an area of rangeland, in map unit 250, Cleavage-Ninemile-Westbutte complex, 2 to 15 percent slopes; Lake County, Oregon; about 750 feet north and 200 feet east of the southwest corner of section 15, T. 35 S., R. 22 E.; U.S. Geological Survey Cooper Draw 7.5-minute topographic quadrangle; latitude 42 degrees, 31 minutes, 43 seconds north and longitude 120 degrees, 7 minutes, 11 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, nonsticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear smooth boundary.

A2—2 to 7 inches; brown (10YR 5/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and fine tubular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear smooth boundary.

Bt—7 to 11 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to weak fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few very fine, common fine, and few medium roots; common very fine tubular pores; common faint continuous clay films on faces of peds; 20 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.4); abrupt smooth boundary.

R—11 inches; welded ashflow tuff.

Range in Characteristics

Mollic epipedon thickness: 7 to 11 inches
Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—23 to 35 percent; rock fragment content—35 to 50 percent

A horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Clay content—15 to 22 percent
Texture—very cobbly loam
Rock fragment content—35 to 50 percent total, with 15 to 20 percent gravel, 15 to 30 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 3 percent
Reaction—neutral

Bt horizon
Chroma—3 or 4 dry or moist
Texture—very cobbly clay loam, very cobbly loam, very gravelly clay loam, or very gravelly loam
Clay content—23 to 35 percent
Rock fragment content—35 to 50 percent total, with 15 to 30 percent gravel, 15 to 35 percent cobbles, and 0 to 5 percent stones
Reaction—neutral or slightly alkaline

Characteristics Outside Range of Series

Depth to bedrock: Cleavage soils in this survey area—10 to 20 inches; Cleavage series—14 to 20 inches
Rock fragment content: Cleavage soils in this survey area—35 to 50 percent; Cleavage series—50 to 80 percent

Cleet Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Basins
Landform: Fan remnants

Parent material: Alluvium derived from mixed volcanic rock
Slope range: 2 to 15 percent
Elevation: 4,430 to 5,000 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic, shallow Xeric Argidurids

Typical Pedon

Cleet very gravelly sandy loam, 2 to 15 percent slopes, in an area of rangeland, in map unit 251, Lake County Oregon; about 600 feet east and 800 feet south of the northwest corner of section 30, T. 34 S., R. 24 E.; U.S. Geological Survey Rabbit Hills SW 7.5-minute topographic quadrangle; latitude 42 degrees, 35 minutes, 52 seconds north and longitude 119 degrees, 56 minutes, 18 seconds west; NAD 27 (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common fine and medium tubular pores; 35 percent gravel, 5 percent cobbles, and 2 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

Bt1—2 to 5 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure parting to moderate medium granular; soft, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common fine and medium tubular pores; few faint clay films on faces of peds; 30 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

Bt2—5 to 15 inches; light brown (7.5YR 6/4) very gravelly loam, brown (7.5YR 4/4) moist; strong medium subangular blocky structure parting to weak fine angular blocky; hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; few fine and medium tubular pores; common distinct clay films on faces of peds; 30 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); gradual smooth boundary.

Bkqm1—15 to 42 inches; very pale brown (10YR 7/3) cemented material, yellowish brown (10YR 5/4) moist; massive; rigid; very strongly cemented with silica and secondary carbonates; few very fine and fine roots in cracks; few fine tubular pores; strongly effervescent; gradual smooth boundary.

Bkqm2—42 to 60 inches; very pale brown (10YR 7/3) cemented material, yellowish brown (10YR 5/4) moist; massive; rigid; strongly cemented with silica and secondary carbonates; violently effervescent.

Range in Characteristics

Depth to the duripan: 14 to 20 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—18 to 25 percent; rock fragment content—35 to 60 percent, mainly gravel
Reaction: Slightly alkaline
Other features: Lithology of rock fragments is mixed volcanic rock. Some pedons have a C horizon below the duripan.

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very gravelly sandy loam

Clay content—12 to 20 percent
Rock fragment content—35 to 60 percent total, with 25 to 40 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Organic matter content—0.5 to 1.0 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bt horizon
Hue—7.5YR or 10YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very gravelly loam or very gravelly sandy loam
Clay content—18 to 25 percent
Rock fragment content—35 to 60 percent total, with 25 to 45 percent gravel, 0 to 15 percent cobbles, and 0 to 5 percent stones
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bkqm horizon
Cementation—strongly cemented to indurated

Clurde Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Fan remnants, inset fans, alluvial fans, and dissected terraces
Parent material: Volcanic ash over alluvium derived from mixed volcanic rock
Slope range: 0 to 6 percent
Elevation: 4,300 to 4,660 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Durinodic Xeric Haplocambids

Typical Pedon

Clurde silt loam in an area of rangeland, in map unit 253, Clurde-Toll complex, 0 to 12 percent slopes; Lake County, Oregon; about 2,500 feet east and 1,200 feet south of the northwest corner of section 13, T. 27 S., R. 22 E.; U.S. Geological Survey Goodrich Well 7.5-minute topographic quadrangle; latitude 43 degrees, 14 minutes, 3 seconds north and longitude 120 degrees, 1 minute, 28 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; light gray (10YR 7/2) silt loam, dark brown (10YR 3/3) moist; moderate medium and thick platy structure parting to moderate very fine and fine granular; soft, very friable, moderately sticky and slightly plastic; common very fine roots; common very fine and fine tubular pores; 2 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.
Bw—3 to 12 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 4/4) moist; moderate coarse and medium subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; common very fine and few fine and medium roots; common very fine and fine tubular pores; 2 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

2Bkq1—12 to 25 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure parting to moderate medium and coarse granular; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common very fine and fine tubular pores; 2 percent gravel; 20 percent very hard, firm and brittle durinodes; disseminated lime; slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

2Bkq2—25 to 38 inches; very pale brown (10YR 8/2) loam, brown (10YR 5/3) moist; moderate thick platy structure; hard, firm and brittle, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular pores; 2 percent gravel; disseminated lime; slightly effervescent; moderately alkaline (pH 8.0); gradual smooth boundary.

2C—38 to 60 inches; very pale brown (10YR 8/2) loam, brown (10YR 5/3) moist; moderate very thick platy structure; hard, firm, moderately sticky and moderately plastic; very few very fine roots; common very fine and fine tubular pores; 2 percent gravel; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to durinodes: 10 to 17 inches
Depth to carbonates: 10 to 24 inches
Particle-size control section: Clay content—18 to 30 percent; rock fragment content—2 to 30 percent gravel
Other feature: A thin Bq horizon is above the Bkq horizon in some pedons.

A horizon
Value—4 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—silt loam or loam
Clay content—10 to 22 percent
Rock fragment content—0 to 10 percent
Organic matter content—0.1 to 0.5 percent
Reaction—neutral or slightly alkaline

Bw horizon
Value—4 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—clay loam, loam, or silt loam
Clay content—18 to 30 percent
Rock fragment content—0 to 15 percent, mainly gravel
Reaction—neutral to strongly alkaline

2Bkq horizon
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 to 4 dry or moist
Texture—gravelly sandy loam, gravelly loam, loam, sandy clay loam, or clay loam
Clay content—15 to 30 percent
Rock fragment content—2 to 30 percent, mainly gravel
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—2 to 4 percent
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—2 to 12
Cementation—20 to 60 percent durinodes, or brittle and at least firm when moist; thin layers with discontinuous weak cementation in some pedons

2C horizon
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 4 dry or moist
Texture—gravelly sandy loam, gravelly loam, loam, sandy clay loam, or clay loam
Clay content—15 to 30 percent
Rock fragment content—2 to 30 percent
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—2 to 12

Characteristics Outside Range of Series

No identifiable secondary carbonates in the 2Bkq horizon.

Connleyhills Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 20 percent
Elevation: 4,350 to 5,140 feet
Mean annual precipitation: 8 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey-skeletal, smectitic, frigid Vitritorrandic Argixerolls

Typical Pedon

Connleyhills ashy coarse sandy loam, 2 to 15 percent slopes, in an area of rangeland, in map unit 254, Lake County, Oregon; about 2 miles southwest of the Connley Hills; about 700 feet south and 1,550 feet west of the northeast corner of section 9, T. 27 S., R. 14 E.; U.S. Geological Survey Silver Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 14 minutes, 52 seconds north and longitude 121 degrees, 3 minutes, 33 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; grayish brown (10YR 5/2) ashy coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to strong medium granular; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine, common fine, and few medium vesicular pores; 5 percent gravel and 5 percent cobbles; neutral (pH 7.0); abrupt smooth boundary.

A2—4 to 11 inches; brown (10YR 5/3) ashy coarse sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to strong medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and few fine and medium vesicular and interstitial pores; 5 percent gravel and 5 percent cobbles; neutral (pH 6.9); abrupt smooth boundary.

2Bt1—11 to 15 inches; brown (10YR 5/3) very cobbly ashy clay loam, dark brown (10YR 3/3) moist; strong coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine, medium, and coarse roots; common very fine and few fine interstitial and tubular pores; common faint clay films on faces of peds; 10 percent gravel, 30 percent cobbles, and 10 percent stones; neutral (pH 7.0); clear smooth boundary.

2Bt2—15 to 22 inches; yellowish brown (10YR 5/4) very cobbly clay, dark yellowish brown (10YR 3/4) moist; weak medium prismatic structure parting to moderate medium angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; few very fine and fine tubular pores; common distinct clay films on faces of peds; 10 percent gravel, 30 percent cobbles, and 10 percent stones; neutral (pH 7.0); clear smooth boundary.

2Bt3—22 to 29 inches; pale brown (10YR 6/3) clay, brown (10YR 4/3) moist; moderate medium prismatic structure parting to strong medium angular blocky; very hard, very friable, moderately sticky and very plastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; common prominent clay films on faces of peds; 5 percent gravel and 5 percent cobbles; neutral (pH 7.1); abrupt wavy boundary.

3Bt4—29 to 32 inches; dark yellowish brown (10YR 4/4) very stony ashy clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine tubular pores; common distinct clay films on faces of peds; 10 percent gravel, 10 percent cobbles, and 20 percent stones; neutral (pH 7.2); abrupt smooth boundary.

3R—32 inches; unweathered basalt; 1-millimeter-thick, discontinuous opal coatings on surface.

Range in Characteristics

Mollic epipedon thickness: 9 to 20 inches, includes the 2Bt1 horizon in some pedons
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—35 to 50 percent by weighted average; rock fragment content—35 to 50 percent, mainly cobbles
Other feature: Lithology of fragments—volcanic rock such as basalt and tuff breccia

A1 horizon
Value—5 or 6 dry
Chroma—2 or 3 dry or moist
Texture—ashy coarse sandy loam, gravelly ashy sandy loam, or cobbly ashy loam
Clay content—5 to 20 percent
Rock fragment content—0 to 35 percent total, with 0 to 30 percent gravel and 0 to 25 percent cobbles
Organic matter content—1 to 3 percent
Volcanic glass content—30 to 40 percent in sand and silt fraction

A2 horizon
Chroma—2 or 3 dry or moist
Texture—gravelly ashy coarse sandy loam, gravelly ashy sandy loam, cobbly ashy coarse sandy loam, cobbly ashy sandy loam, ashy coarse sandy loam, or ashy sandy loam
Clay content—8 to 18 percent
Rock fragment content—10 to 30 percent total, with 5 to 20 percent gravel, 5 to 20 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 2 percent
Volcanic glass content—30 to 40 percent in coarse silt to fine sand fractions

2Bt1 horizon
Value—5 or 6 dry, 3 or 4 moist
Texture—very cobbly ashy clay loam
Clay content—27 to 40 percent

Rock fragment content—35 to 60 percent total, with 10 to 15 percent gravel, 25 to 35 percent cobbles, and 0 to 10 percent stones
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Volcanic glass content—30 to 40 percent in coarse silt to fine sand fractions

2Bt2 horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very cobbly clay
Clay content—40 to 60 percent
Rock fragment content—35 to 50 percent total, with 5 to 15 percent gravel, 25 to 35 percent cobbles, and 5 to 10 percent stones
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

2Bt3 horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—clay
Clay content—40 to 50 percent
Rock fragment content—0 to 10 percent total, with 0 to 10 percent gravel and 0 to 5 percent cobbles
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

3Bt4 horizon
Texture—very stony ashy clay loam or very cobbly ashy clay loam
Clay content—27 to 40 percent
Rock fragment content—40 to 60 percent total, with 5 to 15 percent gravel, 10 to 35 percent cobbles, and 20 to 30 percent stones
Reaction—neutral or slightly alkaline

Cooperdraw Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Basins
Landform: Fan remnants
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 1 to 5 percent
Elevation: 4,810 to 5,590 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Xeric Argidurids

Typical Pedon

Cooperdraw very gravelly sandy loam in an area of rangeland, in map unit 256, Cooperdraw-Fertaline complex, 1 to 5 percent slopes; Lake County, Oregon; about 10 miles east of Lake Abert; about 1,200 feet north and 2,250 feet west of the southeast corner of section 20, T. 34 S., R. 23 E.; U.S. Geological Survey Cooper

Draw 7.5-minute topographic quadrangle; latitude 42 degrees, 36 minutes, 11 seconds north and longitude 120 degrees, 1 minute, 53 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; few fine irregular pores; 25 percent gravel, 10 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

AB—2 to 8 inches; yellowish brown (10YR 5/4) gravelly loam, dark yellowish brown (10YR 3/4) moist; strong medium granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; few fine irregular pores; 15 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); abrupt smooth boundary.

Btk—8 to 14 inches; pale brown (10YR 6/3) very cobbly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine and medium roots; few fine irregular pores; 25 percent gravel, 15 percent cobbles, and 5 percent stones; common distinct clay films on faces of peds; secondary carbonates segregated as few fine coatings on bottom of rock fragments; slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Bkq—14 to 24 inches; light yellowish brown (10YR 6/4) very cobbly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, brittle, slightly sticky and slightly plastic; few very fine, fine, and medium roots; few fine irregular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; 15 percent strongly cemented and indurated, gravel-sized duripan fragments; secondary carbonates segregated as common fine and medium coatings on rock and duripan fragments; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bkqm1—24 to 38 inches; pale brown (10YR 6/3) cemented material, brown (10YR 4/3) moist; massive; few very fine roots; few fine irregular pores; indurated laminar opaline silica cap 2 to 4 centimeters thick over strongly cemented matrix that is brittle when moist; secondary carbonates segregated as filaments and coatings along fractures; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bkqm2—38 to 60 inches; very pale brown (10YR 7/4) cemented material, light yellowish brown (10YR 6/4) moist; massive; indurated with secondary silica and carbonates; secondary carbonates segregated as filaments and coatings along fractures; strongly effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to the duripan: 20 to 40 inches

Depth to bedrock: More than 60 inches

Particle-size control section: Clay content—30 to 35 percent; rock fragment content—40 to 60 percent, mainly cobbles and gravel

Other feature: Lithology of fragments—volcanic rock such as basalt or tuff

A horizon

Value—5 or 6 dry, 3 or 4 moist

Texture—very gravelly sandy loam

Clay content—15 to 20 percent

Rock fragment content—35 to 60 percent total, with 25 to 45 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones

Organic matter content—0.5 to 1.0 percent

AB horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry, 2 to 4 moist
Texture—gravelly loam or very gravelly loam
Clay content—15 to 24 percent
Rock fragment content—20 to 45 percent total, with 15 to 45 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones

Btk horizon
Texture—very cobbly clay loam
Clay content—30 to 35 percent
Rock fragment content—40 to 60 percent total, with 15 to 35 percent gravel, 15 to 25 percent cobbles, and 0 to 5 percent stones
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 to 3 percent
Identifiable secondary carbonates—few medium coatings on bottom of rock fragments

Bkq horizon
Texture—very cobbly sandy loam
Clay content—10 to 18 percent
Rock fragment content—40 to 60 percent total, with 15 to 35 percent gravel, 15 to 25 percent cobbles, and 0 to 5 percent stones
Reaction—moderately alkaline
Calcium carbonate equivalent—2 to 5 percent

Bkqm horizon
Value—6 to 8 dry, 4 to 7 moist
Chroma—2 to 4 dry or moist
Cementation class—strongly cemented in the upper subhorizon with an indurated laminar cap and indurated throughout in the lower subhorizon

Corral Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as tuff
Slope range: 2 to 15 percent
Elevation: 4,450 to 5,230 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy, mixed, superactive, mesic, shallow Xeric Haplargids

Typical Pedon

Corral fine sandy loam in an area of rangeland; in the soil survey of Lake County, Oregon, Southern Part; about 800 feet south of jeep trail, in the northeast corner of the northeast corner of section 22, T. 38 S., R. 28 E.; U.S. Geological Survey Lone Grave Butte 7.5-minute topographic quadrangle; latitude and longitude not available. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine, common fine, and few medium vesicular pores; 10 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

A2—3 to 5 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine roots; few fine vesicular pores; 10 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt—5 to 13 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine roots; few very fine tubular pores; common faint clay films on faces of peds; slightly alkaline (pH 7.4); clear smooth boundary.

Crk—13 inches; brownish yellow (10YR 6/6) tuff, yellowish brown (10YR 5/6) moist; segregated carbonates in fractures.

Range in Characteristics

Depth to bedrock: 12 to 20 inches
Particle-size control section: Clay content—18 to 27 percent by weighted average; rock fragment content—0 to 15 percent, mainly gravel
Reaction: Neutral or slightly alkaline
Other feature: Some pedons have segregated and disseminated carbonates in the upper part of the bedrock and along fractures.

A1 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—fine sandy loam
Clay content—10 to 18 percent
Rock fragment content—0 to 15 percent
Organic matter content—0.1 to 0.5 percent

A2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—sandy loam or loam
Clay content—11 to 20 percent
Rock fragment content—0 to 15 percent
Organic matter content—0.1 to 0.4 percent

Bt horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 to 5 moist
Chroma—3 or 4 dry or moist
Texture—sandy clay loam, clay loam, or loam
Clay content—20 to 35 percent
Rock fragment content—0 to 15 percent
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter

Coztur Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 15 percent
Elevation: 4,320 to 5,900 feet
Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy, mixed, superactive, frigid Lithic Xeric Haplargids

Typical Pedon

Coztur sandy loam, 2 to 15 percent slopes, in an area of rangeland, in map unit 258; Lake County, Oregon; about 2,000 feet north and 1,100 feet west of the southeast corner of section 18, T. 43 S., R. 22 E.; U.S. Geological Survey Lake Abert South 7.5-minute topographic quadrangle; latitude 42 degrees, 37 minutes, 11 seconds north and longitude 120 degrees, 9 minutes, 50 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few medium tubular pores; 10 percent gravel and 2 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.
Bt1—3 to 7 inches; pale brown (10YR 6/3) very cobbly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few medium tubular pores; 25 percent gravel, 15 percent cobbles, and 5 percent stones; few faint continuous clay films on faces of peds; slightly alkaline (pH 7.8); clear smooth boundary.
Bt2—7 to 13 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few medium tubular pores; common distinct continuous clay films on faces of peds; slightly alkaline (pH 7.8); abrupt smooth boundary.
R—13 inches; basalt.

Range in Characteristics

Depth to bedrock: 13 to 20 inches
Particle-size control section: Clay content—28 to 35 percent; rock fragment content—0 to 45 percent, with weighted average less than 25 percent
Reaction: Slightly alkaline

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—sandy loam
Clay content—12 to 20 percent
Rock fragment content—0 to 15 percent total, with 0 to 15 percent gravel and 0 to 5 percent cobbles
Organic matter content—0.7 to 1.0 percent

Bt1 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly clay loam
Clay content—28 to 35 percent
Rock fragment content—35 to 45 percent total, with 10 to 30 percent gravel, 15 to 25 percent cobbles, and 0 to 5 percent stones
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Sodicity (sodium adsorption ratio)—0 to 2

Bt2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—clay loam
Clay content—28 to 35 percent
Rock fragment content—0 to 15 percent total, with 0 to 10 percent gravel and 0 to 5 percent cobbles
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Characteristics Outside Range of Series

Depth to R horizon: 13 inches
Rock fragment content in Bt1 horizon: 45 percent
Elevation: Ranges to as low as 4,320 feet

Crackedground Series

Depth class: Deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus and lava plains
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Elevation: 4,340 to 4,770 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Vitritorrandic Haploxerolls

Typical Pedon

Crackedground cobbly ashy loamy sand, 1 to 6 percent slopes, in an area of rangeland, in map unit 260, Lake County, Oregon; near the edge of the East Lava Field, about 4 miles southeast of Lava Mountain; 1.5 miles northeast of Sinks Road and 20 feet north of jeep trail; about 1,280 feet south and 2,720 feet east of the northwest corner of section 4, T. 25 S., R. 17 E.; U.S. Geological Survey Jacks Place 7.5-minute topographical quadrangle; latitude 43 degrees, 26 minutes, 16 seconds north and longitude 120 degrees, 41 minutes, 0 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 5 inches; grayish brown (10YR 5/2) cobbly ashy loamy sand, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; common very fine and fine interstitial and tubular pores; 5 percent gravel, 10 percent cobbles, and 2 percent stones; neutral (pH 7.0); abrupt smooth boundary.

A2—5 to 13 inches; brown (10YR 5/3) very cobbly ashy sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine and few medium interstitial and tubular pores; 10 percent gravel, 15 percent cobbles, and 10 percent stones; neutral (pH 7.2); clear wavy boundary.

Bw1—13 to 27 inches; brown (10YR 5/3) extremely stony ashy sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, common fine, and few medium roots; few very fine, fine, and medium tubular pores; 15 percent gravel, 20 percent cobbles, and 30 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

Bw2—27 to 38 inches; light brownish gray (10YR 6/2) extremely stony ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; 15 percent gravel, 25 percent cobbles, and 30 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

Bq—38 to 43 inches; light brownish gray (10YR 6/2) extremely stony ashy sandy loam, dark grayish brown (10YR 4/2) moist; strong medium and thick platy structure; very hard, extremely firm, slightly sticky and nonplastic; few very fine roots; few very fine pores; 40 percent discontinuous lenses of moderately silica-cemented material; 10 percent gravel, 25 percent cobbles, and 30 percent stones; slightly alkaline (pH 7.5); abrupt wavy boundary.

R—43 inches; basalt; discontinuous thin (less than 1 millimeter) opal coatings on surface of bedrock.

Range in Characteristics

Mollic epipedon thickness: 10 to 13 inches; does not include the Bw horizon
Depth to bedrock: 40 to 60 inches
Particle-size control section: Clay content—10 to 18 percent; rock fragment content—60 to 70 percent, mainly stones
Reaction: Neutral or slightly alkaline
Other features: Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions; lithology of fragments—basalt

A1 horizon
Value—5 dry, 3 moist
Chroma—2 dry or moist
Texture—cobbly ashy loamy sand, stony ashy loamy sand, gravelly ashy loamy sand, cobbly ashy sandy loam, or very cobbly ashy sandy loam
Clay content—7 to 12 percent
Rock fragment content—0 to 60 percent total, with 0 to 30 percent gravel, 0 to 30 percent cobbles, and 0 to 15 percent stones
Organic matter content—1 to 3 percent

A2 horizon
Value—5 dry, 3 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly ashy sandy loam
Clay content—10 to 16 percent
Rock fragment content—35 to 60 percent total, with 5 to 30 percent gravel, 10 to 30 percent cobbles, and 5 to 15 percent stones
Organic matter content—1 to 2 percent

Bw1 horizon
Value—5 dry, 3 moist
Chroma—3 or 4 dry or moist
Texture—extremely stony ashy sandy loam
Clay content—10 to 18 percent
Rock fragment content—60 to 75 percent total, with 5 to 30 percent gravel, 10 to 30 percent cobbles, and 25 to 45 percent stones

Bw2 horizon
Value—5 or 6 dry
Chroma—2 to 4 dry or moist
Texture—extremely stony ashy sandy loam
Clay content—10 to 18 percent
Rock fragment content—60 to 80 percent total, with 5 to 30 percent gravel, 10 to 30 percent cobbles, and 25 to 50 percent stones

Bq horizon
Value—5 or 6 dry
Chroma—2 to 4 dry or moist
Texture—extremely stony ashy sandy loam
Clay content—10 to 18 percent
Rock fragment content—60 to 80 percent total, with 5 to 20 percent gravel, 10 to 30 percent cobbles, and 25 to 45 percent stones

Davey Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins
Landform: Alluvial fans and fan skirts
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 15 to 45 percent
Elevation: 4,300 to 4,930 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Sandy, mixed, mesic Xeric Haplocambids

Typical Pedon

Davey loamy sand in an area of rangeland, in map unit 244, Catlow-Davey complex, 2 to 30 percent slopes; Lake County, Oregon; about 2,100 feet west and 600 feet north of the southeast corner of section 3, T. 34 S., R. 24 E.; U.S. Geological Survey Rabbit Hills NE 7.5-minute topographical quadrangle; latitude 42 degrees, 38 minutes, 43 seconds north and longitude 119 degrees, 52 minutes, 20.3 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; grayish brown (10YR 5/2) loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; common very fine and fine tubular pores; 12 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bw1—3 to 9 inches; grayish brown (10YR 5/2) sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; common very fine and fine tubular pores; slightly alkaline (pH 7.6); clear smooth boundary.

Bw2—9 to 23 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak coarse prismatic structure; slightly hard, very friable; slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

C1—23 to 40 inches; pale yellow (2.5Y 7/3) loamy fine sand, light olive brown (2.5Y 5/3) moist; weak coarse prismatic structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and few fine roots; many very fine interstitial pores and few fine tubular pores; moderately alkaline (pH 8.2); abrupt smooth boundary.

C2—40 to 48 inches; light gray (2.5Y 7/2) loamy fine sand, light olive brown (2.5Y 5/3) moist; few faint yellowish brown (10YR 5/6) iron masses in root channels; moderate medium subangular blocky structure; hard, friable, nonsticky and nonplastic; many very fine and few fine roots; many very fine interstitial pores and few fine tubular pores; common fine and medium soft ash threads throughout; moderately alkaline (pH 8.2); abrupt smooth boundary.

C3—48 to 60 inches; light gray (2.5Y 7/2) loamy fine sand, light olive brown (2.5Y 5/3) moist; massive; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: More than 60 inches

Particle-size control section: Clay content—5 to 10 percent; rock fragment content—0 to 15 percent

Other features: Secondary carbonates are disseminated or occur as filaments within a depth of 30 inches in some pedons. A continuous weakly silica-cemented or strongly silica-cemented horizon is below a depth of 50 inches in some pedons.

A horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 to 6 moist
Chroma—1 to 3 dry or moist
Texture—loamy sand or fine sandy loam
Clay content—3 to 8 percent
Rock fragment content—0 to 15 percent gravel
Organic matter content—0.1 to 0.5 percent
Reaction—neutral or slightly alkaline

Bw horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—fine sandy loam or sandy loam
Clay content—5 to 16 percent
Rock fragment content—0 to 15 percent gravel
Reaction—neutral to moderately alkaline

C horizon, and Ck horizon, where present
Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 to 6 moist
Chroma—2 to 4 dry or moist
Texture—fine sand, loamy fine sand, or loamy sand
Clay content—5 to 10 percent
Rock fragment content—0 to 15 percent gravel
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2
Redoximorphic features—relict redoximorphic concentrations or masses below a depth of 40 inches in some pedons.
Other features—very fine sandy loam or silt loam strata below a depth of 40 inches in some pedons; slightly effervescent to violently effervescent in Ck horizon (where present); disseminated or segregated carbonates that occur as few or common filaments or as partial coatings on rock fragments; as much as 10 percent weakly cemented durinodes below a depth of 20 inches in some pedons

Deppy Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Basins
Landform: Fan remnants and lake terraces
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 5 to 50 percent
Elevation: 4,260 to 5,160 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy, mixed, superactive, mesic, shallow Argidic Argidurids

Typical Pedon

Deppy very cobbly loam in an area of rangeland; in the soil survey of Lake County, Oregon, Southern Part; about 0.5 mile south of Black Slough Canyon; in the southwest corner of the southwest corner of section 2, T. 36 S., R. 28 E.; U.S. Geological Survey Beatys Butte NW 7.5-minute topographic quadrangle; latitude and longitude not available. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; light brownish gray (10YR 6/2) very cobbly loam, dark grayish brown (10YR 4/2) moist; moderate thick platy structure parting to weak medium platy; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; many fine and common medium vesicular pores; 20 percent stones and 30 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bt—4 to 8 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) moist; moderate fine angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; few faint clay films on faces of peds; 10 percent gravel; moderately alkaline (pH 8.0); clear smooth boundary.

Btkq—8 to 11 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; strong fine subangular blocky structure; hard, firm and brittle, nonsticky and nonplastic; common fine roots; common fine tubular pores; 10 percent gravel and 2 percent cobbles; slightly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bkqm—11 to 24 inches; cemented material; hard, very firm, strongly cemented with opaline silica; strongly effervescent; abrupt wavy boundary.

2Ck—24 to 60 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 3/6) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; many very fine irregular pores; violently effervescent, disseminated calcium carbonate; 30 percent gravel; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to the duripan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—27 to 35 percent; rock fragment content—5 to 15 percent

A horizon
Chroma—2 or 3 dry or moist
Texture—very cobbly loam or extremely stony loam

Clay content—20 to 27 percent
Rock fragment content—35 to 80 percent total, with 0 to 20 percent gravel, 10 to 40 percent cobbles, and 5 to 45 percent stones
Organic matter content—0.3 to 0.5 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—1 to 3

Bt and Btkq horizons
Chroma—2 or 3 dry, 2 to 4 moist
Texture—clay loam
Clay content—27 to 35 percent
Rock fragment content—5 to 15 percent total, with 2 to 15 percent gravel and 0 to 3 percent cobbles
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—2 to 10

2Ck horizon
Texture—gravelly sandy loam or very gravelly sandy loam
Clay content—5 to 15 percent
Rock fragment content—25 to 55 percent total, dominantly gravel
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 5 percent
Sodicity (sodium adsorption ratio)—5 to 15

Derallo Series

Depth class: Deep to bedrock
Drainage class: Well drained
Landscape: Hills and mountains
Landform: Hillslopes and mountain slopes
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite
Slope range: 15 to 60 percent
Elevation: 4,470 to 5,930 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Vitritorrandic Argixerolls

Typical Pedon

Derallo extremely cobbly ashy fine sandy loam in an area of rangeland, in map unit 378, Jacksplace-Derallo-Glencabin complex, 5 to 60 percent slopes; Lake County, Oregon; about 1,600 feet north and 1,400 feet west of the southeast corner of section 34, T. 23 S., R. 22 E.; U.S. Geological Survey Glass Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 31 minutes, 53.5 seconds north and longitude 120 degrees, 3 minutes, 37.4 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated. When described on September 16, 2002, the soil was dry throughout.)

The soil surface is partially covered with rock fragments, including 30 percent with gravel, 30 percent with cobbles, 5 percent with stones, and 1 percent with boulders.

A1—0 to 1 inch; grayish brown (10YR 5/2) extremely cobbly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, slightly sticky and nonplastic; few very fine roots; many very fine interstitial pores; 30 percent gravel, 30 percent cobbles, and 5 percent stones; slightly acid (pH 6.4); abrupt smooth boundary.

A2—1 to 4 inches; grayish brown (10YR 5/2) extremely cobbly ashy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse and medium granular structure; soft, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many very fine interstitial pores; 40 percent gravel, 30 percent cobbles, and 5 percent stones; slightly acid (pH 6.5); clear smooth boundary.

AB—4 to 12 inches; grayish brown (10YR 5/2) extremely gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many very fine interstitial pores and common very fine tubular pores; 50 percent gravel, 20 percent cobbles, and 5 percent stones; neutral (pH 6.9); gradual smooth boundary.

Bt1—12 to 19 inches; brown (10YR 5/3) extremely gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine tubular and interstitial pores; 55 percent gravel and 20 percent cobbles; few faint clay bridges between sand grains; neutral (pH 7.1); clear smooth boundary.

Bt2—19 to 23 inches; brown (10YR 5/3) extremely gravelly ashy loam, dark brown (10YR 3/3) moist; strong fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and common fine and medium roots; many very fine and few fine tubular pores; 30 percent fine gravel, 15 percent medium gravel, and 20 percent cobbles; few distinct clay films on faces of peds and lining pores and common faint clay bridges between sand grains; neutral (pH 7.1); clear smooth boundary.

Bt3—23 to 36 inches; brown (10YR 5/3) very gravelly ashy sandy clay loam, brown (10YR 4/3) moist; strong fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; many very fine and few fine tubular pores; 15 percent fine gravel, 25 percent medium gravel, and 15 percent cobbles; common distinct clay films on faces of peds and lining pores; slightly alkaline (pH 7.4); gradual smooth boundary.

Bt4—36 to 41 inches; pale brown (10YR 6/3) very gravelly ashy fine sandy loam, brown (10YR 4/3) moist; strong fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; 35 percent gravel and 10 percent cobbles; common faint clay films on faces of peds and lining pores; slightly alkaline (pH 7.5); clear wavy boundary.

Cr—41 to 51 inches; glassy rhyolite (fibrous obsidian).

Range in Characteristics

Mollic epipedon thickness: 10 to 24 inches, includes the Bt1 horizon in some pedons

Depth to bedrock: 40 to 60 inches

Particle-size control section: Clay content—22 to 32 percent by weighted average; rock fragment content—40 to 60 percent by weighted average

Volcanic glass content: 30 to 75 percent in the coarse silt to fine sand fractions

A1 horizon

Chroma—2 or 3 dry or moist

Texture—very gravelly ashy loam, very cobbly ashy fine sandy loam, stony ashy very fine sand, or very stony ashy fine sand

Clay content—10 to 18 percent

Rock fragment content—15 to 80 percent total, with 2 to 55 percent gravel, 5 to 60 percent cobbles, and 0 to 30 percent stones

Organic matter content—1.5 to 4.0 percent
Reaction—slightly acid or neutral

A2 and AB horizons
Chroma—2 or 3 dry or moist
Texture—extremely cobbly ashy loam or extremely gravelly ashy loam
Clay content—18 to 26 percent
Rock fragment content—60 to 80 percent total, with 20 to 55 percent gravel, 20 to 50 percent cobbles, and 0 to 10 percent stones
Organic matter content—1 to 4 percent
Reaction—slightly acid or neutral

Bt horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—extremely gravelly ashy loam, very gravelly ashy clay loam, very gravelly ashy sandy clay loam, very gravelly ashy fine sandy loam, or very cobbly ashy sandy clay loam
Clay content—10 to 35 percent
Rock fragment content—35 to 80 percent total, with 20 to 55 percent gravel, 0 to 30 percent cobbles, and 0 to 10 percent stones
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Deseed Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Residuum and colluvium derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 20 percent
Elevation: 4,480 to 5,880 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Xeric Haplargids

Typical Pedon

Deseed very cobbly sandy loam in an area of rangeland, in map unit 417, Locane-Deseed complex, 2 to 20 percent slopes; Lake County Oregon; about 1,600 feet south and 10 feet west of the northeast corner of section 29, T. 33 S., R. 20 E.; U.S. Geological Survey Coglin Buttes 7.5-minute topographic quadrangle; latitude 42 degrees, 41 minutes, 5 seconds north and longitude 120 degrees, 22 minutes, 30 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; brown (10YR 5/3) very cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common medium and coarse vesicular pores; 15 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear smooth boundary.

A2—2 to 6 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine and medium interstitial and tubular pores; 15 percent gravel, 10 percent cobbles, and 5 percent stones; neutral (pH 7.3); clear smooth boundary.

Bt1—6 to 11 inches; light brownish gray (10YR 6/2) gravelly clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure parting to weak fine angular; slightly hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; common fine and medium interstitial and tubular pores; common faint continuous clay films on faces of peds; 25 percent gravel and 5 percent cobbles; neutral (pH 7.3); abrupt smooth boundary.

Bt2—11 to 17 inches; pale brown (10YR 6/3) clay, brown (10YR 4/3) moist; moderate medium prismatic structure parting to strong medium angular blocky; very hard, firm, moderately sticky and very plastic; common fine and medium roots; few fine interstitial and tubular pores; common distinct continuous clay films on faces of peds; 10 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

Bt3—17 to 24 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; common fine and medium roots; common fine and medium interstitial and tubular pores; common faint continuous clay films on faces of peds; 20 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.5); abrupt smooth boundary.

R—24 inches; basalt.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—35 to 50 percent; rock fragment content—5 to 30 percent
Reaction: Neutral or slightly alkaline

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly sandy loam (A1 horizon) and cobbly loam (A2 horizon)
Clay content—10 to 18 percent
Rock fragment content—15 to 55 percent total, with 5 to 30 percent gravel, 10 to 25 percent cobbles, and 0 to 5 percent stones
Organic matter content—0.2 to 1.0 percent

Bt1 horizon
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly clay loam or clay loam
Clay content—35 to 40 percent
Rock fragment content—5 to 30 percent total, with 5 to 30 percent gravel, 0 to 5 percent cobbles, and 0 to 5 percent stones
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bt2 horizon
Value—4 to 6 dry, 4 or 5 moist
Chroma—3 to 6 dry, 3 or 4 moist
Texture—clay, gravelly clay loam, or clay loam
Clay content—35 to 50 percent

Rock fragment content—5 to 30 percent total, with 5 to 25 percent gravel, 0 to 5 percent cobbles, and 0 to 5 percent stones
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bt3 horizon
Value—4 to 6 dry, 4 or 5 moist
Chroma—3 to 6 dry, 3 or 4 moist
Clay content—30 to 40 percent
Rock fragment content—15 to 35 percent total, with 15 to 30 percent gravel, 0 to 5 percent cobbles, and 0 to 5 percent stones
Texture—gravelly clay loam or gravelly sandy clay loam
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Diablopeak Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Mixed eolian deposits over residuum derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Elevation: 4,300 to 6,020 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey, smectitic, frigid Lithic Natrargids

Typical Pedon

Diablopeak very cobbly fine sandy loam in an area of rangeland, in map unit 271, Diablopeak-Yankeewell complex, 2 to 20 percent slopes; Lake County, Oregon; about 2.0 miles north of Diablo Peak, 0.5 mile northeast of Murphy's Waterhole, and 0.5 mile east of jeep trail; 600 feet south and 750 feet west of the northeast corner of section 11, T. 30 S., R. 18 E.; U.S. Geological Survey Diablo Peak 7.5-minute topographic quadrangle; latitude 42 degrees, 59 minutes, 23 seconds north and longitude 120 degrees, 32 minutes, 45 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; light brownish gray (10YR 6/2) very cobbly fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure parting to moderate medium granular; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common fine and medium vesicular pores; 30 percent gravel, 20 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.4); clear smooth boundary.

A2—2 to 6 inches; pale brown (10YR 6/3) cobbly fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to moderate medium granular; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine and medium interstitial and tubular pores; 10 percent gravel and 10 percent cobbles; strongly alkaline (pH 8.6); abrupt smooth boundary.

E—6 to 7 inches; light gray (10YR 7/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine tubular pores; 5 percent gravel and 5 percent cobbles; strongly alkaline (pH 8.6); abrupt smooth boundary.

2Btn—7 to 12 inches; light brown (7.5YR 6/3) clay, brown (7.5YR 4/3) moist; weak medium prismatic structure parting to strong medium angular blocky; very hard, very firm, moderately sticky and very plastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; common distinct clay films on faces of peds; very strongly alkaline (pH 9.2); clear smooth boundary.

2Btkn—12 to 19 inches; pink (7.5YR 7/3) sandy clay, brown (7.5YR 5/3) moist; strong medium subangular blocky structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine tubular pores; common faint clay films on faces of peds; 10 percent gravel; secondary carbonates segregated in filaments and on faces of peds and bottom of rock fragments; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

2R—19 inches; fractured basalt.

Range in Characteristics

Depth to bedrock: 16 to 20 inches

Depth to base of natric horizon: 14 to 20 inches

Particle-size control section: Clay content—35 to 50 percent by weighted average; rock fragment content—0 to 15 percent by weighted average

Other features: An abrupt boundary commonly is between the E and Btn horizons with an increase in clay content of more than 18 percent. Lithology of fragments is basalt, and the fragments are dominantly gravel-sized.

A1 horizon

Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly fine sandy loam
Clay content—10 to 14 percent
Rock fragment content—45 to 60 percent total, with 20 to 35 percent gravel, 15 to 25 percent cobbles, and 0 to 10 percent stones
Organic matter content—0.2 to 0.5 percent
Reaction—moderately alkaline to very strongly alkaline (pH as high as 9.6)
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—1 to 12

A2 horizon

Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly fine sandy loam, very gravelly fine sandy loam, or cobbly fine sandy loam
Clay content—12 to 18 percent
Rock fragment content—15 to 40 percent total, with 10 to 30 percent gravel and 5 to 15 percent cobbles
Organic matter content—0.2 to 0.4 percent
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—1 to 8

E horizon

Hue—7.5YR or 10YR
Value—6 or 7 dry, 3 or 4 moist
Chroma—1 or 2 dry or moist
Texture—fine sandy loam, gravelly fine sandy loam, or cobbly fine sandy loam

Clay content—12 to 18 percent
Rock fragment content—5 to 20 percent total, with 5 to 15 percent gravel and 0 to 10 percent cobbles
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—1 to 8

2Btn horizon
Hue—7.5YR or 10YR
Value—5 to 7 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—clay loam, clay, or cobbly clay loam
Clay content—35 to 55 percent
Rock fragment content—0 to 20 percent total, with 0 to 10 percent gravel and 0 to 10 percent cobbles
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

2Btkn horizon
Hue—7.5YR or 10YR
Value—6 or 7 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—sandy clay, clay loam, clay, or gravelly clay loam
Clay content—32 to 45 percent
Rock fragment content—10 to 30 percent gravel
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30
Calcium carbonate equivalent—5 to 10 percent

Drakesflat Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus, some of which are dissected
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 30 percent
Elevation: 4,460 to 5,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Calciargidic Argixerolls

Typical Pedon

Drakesflat loam, 2 to 15 percent slopes, in an area of rangeland, in map unit 273; Lake County, Oregon; about 1,900 feet east and 800 feet south of the northeast corner of section 1, T. 28 S., R. 17 E.; U.S. Geological Survey Christmas Valley 7.5-minute topographical quadrangle; latitude 43 degrees, 10 minutes, 39 seconds north and longitude 120 degrees, 39 minutes, 10 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to weak fine granular; slightly hard, very friable, moderately sticky and moderately plastic; common fine roots; few fine vesicular pores; 5 percent gravel and 9 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

A2—2 to 5 inches; grayish brown (10YR 5/2) loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, very friable, moderately sticky and moderately plastic; common fine and few medium roots; few fine interstitial pores; 5 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

A3—5 to 7 inches; grayish brown (10YR 5/2) loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, friable, moderately sticky and moderately plastic; common fine and few medium roots; few fine interstitial pores; 5 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

2Bt1—7 to 12 inches; grayish brown (10YR 5/2) cobbly clay, dark yellowish brown (10YR 3/4) moist; strong fine angular blocky structure; very hard, very firm, moderately sticky and moderately plastic; few fine roots; few fine interstitial pores; many distinct clay films on faces of peds; 5 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.8); gradual smooth boundary.

2Bt2—12 to 16 inches; pale brown (10YR 6/3) cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine roots; few fine interstitial pores; common distinct clay films on faces of peds; 5 percent gravel and 15 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

2Bk—16 to 22 inches; brown (7.5YR 5/3) cobbly clay loam, dark brown (7.5YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; very few fine roots; very few fine interstitial pores; 5 percent gravel and 15 percent cobbles; strongly effervescent; common fine and medium irregular carbonate threads throughout; strongly alkaline (pH 9.0); abrupt wavy boundary.

2R—22 inches; basalt with coatings of silica and calcium carbonate on surface.

Range in Characteristics

Mollic epipedon thickness: 7 to 12 inches
Depth to bedrock: 20 to 40 inches
Depth to secondary carbonates: 15 to 30 inches
Particle-size control section: Clay content—35 to 45 percent; rock fragment content—5 to 25 percent

A1 horizon
Value—3 to 6 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—loam
Clay content—20 to 27 percent
Rock fragment content—5 to 15 percent total, with 5 to 15 percent gravel, 0 to 9 percent cobbles, and 0 to 2 percent stones
Organic matter content—1 to 2 percent
Reaction—neutral or slightly alkaline

A2 and A3 horizons
Value—3 to 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—loam or cobbly loam
Clay content—20 to 27 percent

Rock fragment content—5 to 35 percent total, with 0 to 15 percent gravel, 0 to 20 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 3 percent
Reaction—slightly alkaline or moderately alkaline

2Bt horizon
Hue—7.5YR or 10YR
Value—3 to 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—clay loam, cobbly clay loam, clay, or cobbly clay
Clay content—35 to 45 percent
Rock fragment content—5 to 25 percent total, with 5 to 15 percent gravel, 0 to 15 percent cobbles, and 0 to 5 percent stones
Reaction—slightly alkaline or moderately alkaline

Bkn horizon
Hue—7.5YR or 10YR
Value—3 to 5 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—gravelly loam, cobbly loam, clay loam, or cobbly clay loam
Clay content—20 to 40 percent
Rock fragment content—5 to 35 percent total, with 5 to 30 percent gravel, 0 to 15 percent cobbles, and 0 to 5 percent stones
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 8 percent
Salinity (electrical conductivity)—0 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 20
Effervescence—slightly effervescent or strongly effervescent

Dunres Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 20 percent
Elevation: 4,380 to 5,350 feet
Mean annual precipitation: 10 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey, smectitic, frigid, shallow Vitrandic Durixerolls

Typical Pedon

Dunres cobbly ashy sandy loam, 1 to 15 percent slopes, in an area of rangeland, in map unit 278, Lake County, Oregon; about 900 feet north and 2,300 feet west of the southeast corner of section 11, T. 27 S., R. 13 E., U.S. Geological Survey Oatmanflat 7.5-minute topographic quadrangle; latitude 43 degrees, 14 minutes, 19 seconds north and longitude 121 degrees, 8 minutes, 23 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; grayish brown (10YR 5/2) cobbly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure parting to strong medium granular; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; common very fine and fine tubular and interstitial pores; 5 percent gravel, 10 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear smooth boundary.

Bt1—4 to 8 inches; brown (10YR 5/3) ashy sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine and few fine and medium tubular pores, common very fine and few fine and medium interstitial pores; common faint clay films on faces of peds; 5 percent gravel and 5 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

2Bt2—8 to 12 inches; brown (7.5YR 5/4) clay, dark brown (7.5YR 3/4) moist; weak medium prismatic structure parting to strong medium subangular blocky; hard, firm, moderately sticky and very plastic; few very fine, fine, and medium roots; few fine and medium tubular pores; many distinct clay films on faces of peds; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

2Bt3—12 to 19 inches; brown (7.5YR 5/4) clay, brown (7.5YR 4/4) moist; strong coarse prismatic structure parting to strong fine and medium angular blocky; hard, very firm, very sticky and very plastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; many prominent clay films on faces of peds; slightly alkaline (pH 7.6); abrupt smooth boundary.

2Bqm1—19 to 32 inches; very pale brown (10YR 7/4) cemented material, yellowish brown (10YR 5/4) moist; strong thick platy structure; extremely hard, extremely firm; strongly cemented with secondary silica; 25 percent coarse, prominent, irregular, weakly cemented, black (10YR 2/1) manganese nodules with clear boundaries; slightly alkaline (pH 7.8); gradual wavy boundary.

2Bqm2—32 to 56 inches; very pale brown (10YR 7/4) cemented material, dark yellowish brown (10YR 4/4) moist; moderate thick platy structure; extremely hard, extremely firm; indurated with secondary silica; 25 percent coarse, prominent, irregular, weakly cemented, black (10YR 2/1) manganese nodules with clear boundaries; slightly alkaline (pH 7.8); abrupt wavy boundary.

2R—56 inches; basalt with a coating of opal.

Range in Characteristics

Mollic epipedon thickness: 7 to 15 inches, includes the Bt1 horizon in some pedons
Depth to the duripan: 14 to 20 inches
Depth to bedrock: 20 to 60 inches to a lithic contact
Particle-size control section: Clay content—35 to 45 percent; rock fragment content—0 to 15 percent
Other feature: Lithology of fragments—mainly basalt

A horizon
Value—4 or 5 dry
Chroma—2 or 3 dry or moist
Texture—cobbly ashy sandy loam, very cobbly ashy loam, stony ashy fine sandy loam, cobbly ashy very fine sand, very cobbly ashy sandy loam, or cobbly ashy fine sandy loam
Clay content—2 to 22 percent
Rock fragment content—15 to 60 percent total, with 5 to 30 percent gravel, 0 to 40 percent cobbles, and 0 to 20 percent stones
Reaction—neutral or slightly alkaline
Organic matter content—1 to 3 percent
Volcanic glass content—60 to 80 percent in coarse silt to fine sand fractions

Bt1 horizon
Value—4 or 5 dry
Chroma—2 or 3 dry or moist
Texture—ashy sandy clay loam or cobbly ashy sandy clay loam

Clay content—20 to 35 percent
Rock fragment content—0 to 30 percent total, with 0 to 10 percent gravel and 0 to 20 percent cobbles
Reaction—neutral or slightly alkaline
Volcanic glass content—60 to 80 percent in coarse silt to fine sand fractions

2Bt2 and 2Bt3 horizons
Hue—10YR or 7.5YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—clay or cobbly clay
Clay content—40 to 55 percent
Rock fragment content—0 to 30 percent total, with 0 to 10 percent gravel and 0 to 20 percent cobbles
Reaction—neutral or slightly alkaline

2Bqm horizon
Hue—10YR or 7.5YR
Value—3 to 8 dry, 3 to 6 moist
Chroma—3 to 6 dry or moist
Cementation—strongly cemented to indurated; at least one subhorizon is very strongly cemented or indurated

Edemaps Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Residuum derived from volcanic rock such as rhyolite
Slope range: 2 to 20 percent
Elevation: 4,400 to 5,220 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Argiduridic Durixerolls

Typical Pedon

Edemaps gravelly sandy loam in an area of rangeland, in map unit 287, Edemaps-Pernty-Rock outcrop complex, 2 to 20 percent slopes; Lake County, Oregon; about 1,200 feet south and 150 feet east of the northwest corner of section 18, T. 26 S., R. 23 E.; U.S. Geological Survey Rams Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 19 minutes, 19 seconds north and longitude 120 degrees, 0 minutes, 48 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and nonplastic; many very fine, common fine, and few medium roots; few very fine and common fine and medium vesicular pores; 15 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.
A2—3 to 10 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots;

common very fine and fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt1—10 to 19 inches; pale brown (10YR 6/3) gravelly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common fine and few very fine, medium, and coarse roots; common fine and few very fine and medium irregular pores; common prominent clay films on faces of peds; 15 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); gradual wavy boundary.

Bt2—19 to 24 inches; pale brown (10YR 6/3) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure parting to weak fine angular; hard, firm, moderately sticky and moderately plastic; few fine and medium roots; few fine and medium irregular pores; few faint clay films; 20 percent gravel and 5 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bqm—24 to 26 inches; cemented material; very strongly cemented with silica; abrupt wavy boundary.

R—26 inches; rhyolite.

Range in Characteristics

Mollic epipedon thickness: 7 to 12 inches
Depth to the duripan: 21 to 24 inches
Depth to bedrock: 23 to 30 inches
Particle-size control section: Clay content—35 to 40 percent; rock fragment content—10 to 30 percent

A1 horizon
Texture—gravelly sandy loam or cobbly clay loam
Clay content—12 to 35 percent
Rock fragment content—15 to 35 percent total, with 5 to 20 percent gravel and 0 to 20 percent cobbles
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

A2 horizon
Texture—sandy loam, loam, or clay loam
Clay content—16 to 30 percent
Rock fragment content—0 to 15 percent total, with 0 to 15 percent gravel and 0 to 10 percent cobbles
Organic matter content—1 to 3 percent
Other features—lower boundary is abrupt; an 8 to 15 percent (absolute) clay increase is between the A and Bt horizons

Bt horizon
Value—3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—gravelly clay loam or clay loam
Clay content—35 to 40 percent
Rock fragment content—0 to 35 percent total, with 0 to 25 percent gravel and 0 to 10 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Embal Series

Depth class: Deep to a duripan
Drainage class: Well drained

Landscape: Basins and lava plateaus
Landform: Drainageways and ephemeral stream terraces
Parent material: Alluvium derived from volcanic ash and mixed volcanic rock
Slope range: 0 to 5 percent
Elevation: 4,300 to 6,400 feet
Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Haploxerolls

Typical Pedon

Embal ashy sandy loam, 0 to 3 percent slopes, in an area of rangeland, in map unit 288; Lake County, Oregon; about 300 feet south and 400 feet west of the northeast corner of section 5, T. 23 S., R. 20 E.; U.S. Geological Survey Benjamin Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 36 minutes, 40 seconds north and longitude 120 degrees, 20 minutes, 11 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; brown (10YR 5/3) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine vesicular pores; 5 percent gravel; neutral (pH 7.2); clear smooth boundary.

A2—2 to 6 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, moderately sticky and slightly plastic; many very fine and common fine roots; common very fine tubular pores; 3 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bw—6 to 16 inches; brown (7.5YR 5/3) ashy fine sandy loam, dark brown (7.5YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine, common fine and medium, and few coarse roots; few very fine tubular pores; 3 percent gravel; slightly alkaline (pH 7.6); gradual smooth boundary.

Bk—16 to 25 inches; brown (7.5YR 5/3) ashy fine sandy loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine, few fine and medium, and common coarse roots; common fine vesicular pores; 10 percent fine gravel; common prominent carbonate films on bottom of rock fragments; slightly alkaline (pH 7.6); clear smooth boundary.

Bkq1—25 to 34 inches; pale brown (10YR 6/3) cobbly ashy coarse sandy loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, firm, brittle, slightly sticky and slightly plastic; few very fine, fine, and medium and common coarse roots; common fine vesicular pores; 5 percent gravel and 10 percent cobbles; common prominent carbonate coatings on bottom of peds; strongly effervescent; slightly alkaline (pH 7.8); clear wavy boundary.

2Bkq2—34 to 42 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; hard, friable, brittle, slightly sticky and slightly plastic; few very fine, fine, medium, and coarse roots; common fine vesicular pores; 30 percent paragravel, 20 percent gravel, and 10 percent cobbles; very strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

2Bkqm—42 to 60 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; massive; extremely hard, extremely firm, weakly cemented with silica and carbonate; 30 percent paragravel, 20 percent gravel, and 10 percent cobbles, all mostly cinders; carbonate and silica coatings on rock fragments; strongly effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Mollic epipedon thickness: 20 to 25 inches
Depth to the duripan: 40 to 60 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—10 to 18 percent; rock fragment content—0 to 15 percent
Other features: Some pedons do not have a duripan. Volcanic glass content is 30 to 50 percent in the coarse silt to fine sand fractions.

A1 horizon
Value—5 dry or moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam, ashy silt loam, ashy very fine sandy loam, or gravelly ashy sandy loam
Clay content—5 to 22 percent
Rock fragment content—0 to 30 percent
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

A2 horizon
Value—5 dry or moist
Chroma—2 or 3 dry or moist
Texture—ashy fine sandy loam, ashy sandy loam, or ashy silt loam
Clay content—10 to 18 percent
Rock fragment content—0 to 15 percent
Organic matter content—1 to 2 percent
Reaction—neutral or slightly alkaline

Bw and Bk horizons
Hue—7.5YR, 10YR, or 2.5Y
Value—3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy fine sandy loam or ashy sandy loam
Clay content—10 to 18 percent
Rock fragment content—0 to 15 percent gravel
Reaction—neutral or slightly alkaline
Calcium carbonate equivalent—0 to 5 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bkq1 horizon
Hue—10YR or 2.5Y
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 moist or dry
Texture—cobbly ashy coarse sandy loam or gravelly ashy sandy loam
Clay content—10 to 18 percent
Rock fragment content—15 to 35 percent
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—2 to 5 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter

2Bkq2 horizon
Hue—10YR or 2.5Y
Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 moist or dry
Texture—gravelly ashy sandy loam or very paragravelly ashy sandy loam
Clay content—10 to 18 percent
Rock fragment content—15 to 35 percent
Pararock fragment content—20 to 40 percent
Reaction—moderately alkaline
Calcium carbonate equivalent—2 to 5 percent
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter

2Bkqm horizon
Hue—10YR or 2.5Y
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 moist or dry
Texture—cemented gravelly ashy sandy loam or cemented very paragravelly ashy sandy loam
Clay content—10 to 18 percent
Rock fragment content—15 to 35 percent
Pararock fragment content—20 to 40 percent
Reaction—moderately alkaline
Calcium carbonate equivalent—2 to 5 percent
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter

Enko Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Swales and fan piedmonts
Parent material: Alluvium derived from mixed volcanic rock with an influence of eolian material
Slope range: 0 to 15 percent
Elevation: 4,280 to 5,560 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Durinodic Xeric Haplocambids

Typical Pedon

Enko loamy sand, 2 to 8 percent slopes, in an area of rangeland, in map unit 292, Lake County, Oregon; about 900 feet south and 1,500 feet west of the northeast corner of section 23, T. 27 S., R. 22 E.; U.S. Geological Survey Goodrich Well 7.5-minute topographic quadrangle; latitude 43 degrees, 13 minutes, 15 seconds north and longitude 120 degrees, 2 minutes, 54 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; light brownish gray (10YR 6/2) loamy sand, dark yellowish brown (10YR 3/4) moist; single grain; loose, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores and few fine tubular pores; 14 percent fine gravel; slightly alkaline (pH 7.5); clear wavy boundary.

Bw—2 to 11 inches; pale brown (10YR 6/3) sandy loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure parting to moderate very fine granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular pores; 14 percent fine gravel; slightly alkaline (pH 7.5); clear wavy boundary.

Bq1—11 to 24 inches; pale brown (10YR 6/3) sandy loam, dark yellowish brown (10YR 3/4) moist; massive; hard, firm, nonsticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular pores; 14 percent fine gravel; brittle matrix; slightly alkaline (pH 7.6); clear wavy boundary.

Bq2—24 to 35 inches; light brownish gray (10YR 6/2) paragravelly sandy loam, dark yellowish brown (10YR 3/4) moist; weak very fine and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine and fine tubular pores; 10 percent fine gravel; 34 percent durinodes; slightly alkaline (pH 7.6); abrupt wavy boundary.

2Bkq1—35 to 45 inches; white (10YR 8/1) paragravelly sandy loam, brown (10YR 5/3) moist; weak very fine and fine subangular blocky structure; soft, friable, nonsticky and slightly plastic; few very fine roots; common very fine and fine tubular pores; 30 percent durinodes; strongly effervescent; common fine slightly hard irregular carbonate threads throughout; moderately alkaline (pH 8.2); gradual wavy boundary.

2Bkq2—45 to 60 inches; white (10YR 8/1) loam, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine roots; common very fine and fine tubular pores; weakly cemented with silica; strongly effervescent; common fine slightly hard irregular carbonate threads throughout; strongly alkaline (pH 8.6).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to calcium carbonate: 10 to 35 inches
Particle-size control section: Clay content—10 to 18 percent; rock fragment content—0 to 15 percent gravel
Other feature: Very gravelly or extremely gravelly material is below a depth of 40 inches in some pedons.

A horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—sandy loam, loam, loamy sand, or gravelly loamy sand
Clay content—5 to 25 percent
Rock fragment content—0 to 35 percent gravel
Reaction—neutral to moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Organic matter content—0.2 to 1.0 percent

Bw horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—loam, fine sandy loam, or sandy loam with strata of silt loam or clay loam in some pedons
Clay content—10 to 18 percent
Rock fragment content—0 to 15 percent gravel
Reaction—neutral to moderately alkaline
Salinity (electrical conductivity)—0 to 5 millimhos per centimeter

Bq and Bkq horizons
Hue—10YR, 2.5Y, or 5Y
Value—6 to 8 dry, 3 to 7 moist
Chroma—1 to 4 dry, 2 to 4 moist
Texture—loam, sandy loam, fine sandy loam, gravelly sandy loam, paragravelly sandy loam, or very fine sandy loam

Clay content—10 to 18 percent
Rock fragment content—0 to 30 percent gravel
Pararock fragment content— 0 to 35 percent paragravel (durinodes)
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—0 to 5 percent
Salinity (electrical conductivity)—0 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 15 percent

Erakatak Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus, hills, and mountains
Landform: Lava plateaus, hillslopes, and mountain slopes
Parent material: Colluvium and residuum derived from volcanic rock such as rhyodacite, rhyolite, or basalt with an influence of volcanic ash
Slope range: 5 to 70 percent
Elevation: 4,300 to 6,830 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey-skeletal, smectitic, frigid Vitrandic Argixerolls

Typical Pedon

Erakatak extremely gravelly ashy sandy loam in an area of rangeland, in map unit 247, Chen-Erakatak-Lambring complex, 15 to 50 percent slopes; Lake County, Oregon; about 1,700 feet west and 2,400 feet north of the southeast corner of section 16, T. 35 S., R. 23 E.; U.S. Geological Survey Cooper Draw 7.5-minute topographic quadrangle; latitude 42 degrees, 31 minutes, 59 seconds north and longitude 120 degrees, 0 minutes, 27 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 5/3) extremely gravelly ashy sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine and medium interstitial pores; 60 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear smooth boundary.

A2—3 to 11 inches; grayish brown (10YR 5/2) very gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine, many fine, and few medium roots; common fine and medium interstitial and tubular pores; 35 percent gravel, 10 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear smooth boundary.

Bt1—11 to 20 inches; yellowish brown (10YR 5/4) very cobbly ashy clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure parting to weak fine angular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine and medium tubular pores; common faint continuous clay films on faces of peds; 35 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—20 to 27 inches; light yellowish brown (10YR 6/4) very cobbly clay, dark yellowish brown (10YR 4/4) moist; weak coarse angular blocky structure parting to moderate medium angular blocky; hard, firm, moderately sticky and moderately plastic; few fine and medium roots; few fine and medium tubular pores; common faint continuous clay films on faces of peds; 35 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.5); abrupt smooth boundary.

R—27 inches; fractured rhyodacite and cinnabar.

Range in Characteristics

Mollic epipedon thickness: 8 to 19 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—35 to 45 percent; rock fragment content—35 to 60 percent

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—extremely gravelly ashy sandy loam, cobbly ashy loam, cobbly ashy clay loam, very stony ashy loam, or very stony ashy clay loam
Clay content—10 to 35 percent
Rock fragment content—15 to 80 percent total, with 5 to 70 percent gravel, 5 to 20 percent cobbles, and 0 to 25 percent stones
Organic matter content—1 to 3 percent
Volcanic glass content—5 to 30 percent in coarse silt to fine sand fractions

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—very gravelly ashy loam, very cobbly ashy loam, very gravelly ashy clay loam, or very cobbly ashy clay loam
Clay content—20 to 35 percent
Rock fragment content—35 to 60 percent total, with 15 to 45 percent gravel, 5 to 25 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 3 percent
Volcanic glass content—5 to 30 percent in coarse silt to fine sand fractions

Bt1 horizon
Hue—10YR or 7.5YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly ashy clay loam
Clay content—35 to 40 percent
Rock fragment content—35 to 60 percent total, with 15 to 35 percent gravel, 15 to 25 percent cobbles, and 0 to 10 percent stones
Reaction—neutral or slightly alkaline
Volcanic glass content—5 to 30 percent in coarse silt to fine sand fractions

Bt2 horizon
Hue—10YR or 7.5YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly clay
Clay content—40 to 45 percent
Rock fragment content—35 to 60 percent total, with 15 to 35 percent gravel, 15 to 25 percent cobbles, and 0 to 10 percent stones
Reaction—neutral or slightly alkaline

Felcher Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Mountains, hills, canyonlands, and lava plateaus
Landform: Mountain slopes, hillslopes, canyon walls, and dissected lava plateaus
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 70 percent
Elevation: 4,270 to 6,130 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Xeric Haplocambids

Typical Pedon

Felcher very cobbly loam in an area of rangeland, in map unit 308, Felcher-Rock outcrop-Westbutte complex, 20 to 40 percent slopes; Lake County, Oregon; about 850 feet west and 1,900 feet north of the southeast corner of section 21, T. 25 S., R. 22 E.; U.S. Geological Survey Tired Horse Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 23 minutes, 21 seconds north and longitude 120 degrees, 4 minutes, 41 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium and thick platy structure parting to moderate very fine and fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular pores; 15 percent gravel, 15 percent cobbles, 8 percent stones, and 2 percent boulders; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bw—4 to 14 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine and fine tubular pores; 15 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

Bk—14 to 27 inches; brown (10YR 5/3) extremely stony sandy loam, dark yellowish brown (10YR 3/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine and fine tubular pores; 35 percent gravel, 10 percent cobbles, and 20 percent stones; slightly effervescent; secondary carbonates segregated in few irregularly shaped fine masses; slightly alkaline (pH 7.8); abrupt wavy boundary.

R—27 inches; welded tuff.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—20 to 35 percent; rock fragment content—35 to 70 percent

A horizon
Value—6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loam, very cobbly sandy loam, extremely stony loam, very stony sandy loam, very cobbly clay loam, very stony clay loam, or extremely stony sandy clay loam
Clay content—5 to 35 percent

Rock fragment content—35 to 80 percent total, with 10 to 40 percent gravel, 5 to 40 percent cobbles, 5 to 45 percent stones, and 0 to 2 percent boulders
Reaction—neutral or slightly alkaline
Organic matter content—0.3 to 0.5 percent

Bw horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry, 2 to 4 moist
Texture—very cobbly clay loam, very cobbly loam, or very gravelly clay loam
Clay content—20 to 35 percent
Rock fragment content—35 to 60 percent total, with 15 to 40 percent gravel, 15 to 30 percent cobbles, and 0 to 5 percent stones
Reaction—neutral or slightly alkaline

Bk horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry, 2 to 4 moist
Texture—extremely stony sandy loam, very stony sandy loam, extremely cobbly sandy loam, or very cobbly loam
Clay content—18 to 25 percent
Rock fragment content—35 to 75 percent total, with 15 to 45 percent gravel, 5 to 15 percent cobbles, and 5 to 25 percent stones
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Fertaline Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Basins
Landform: Fan remnants
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 1 to 5 percent
Elevation: 4,810 to 5,590 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Abruptic Xeric Argidurids

Typical Pedon

Fertaline very cobbly sandy loam in an area of rangeland, in map unit 256, Cooperdraw-Fertaline complex, 1 to 5 percent slopes; Lake County, Oregon; about 500 feet east and 400 feet south of the northwest corner of sec. 30, T. 34 S., R. 23 E.; U.S. Geological Survey Cooperdraw 7.5-minute topographic quadrangle; latitude 42 degrees, 35 minutes, 54 seconds north and longitude 120 degrees, 3 minutes, 30 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 4/3) moist; weak medium platy structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and nonplastic; many very fine and common fine roots; common fine and medium interstitial pores; 30 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

E—2 to 7 inches; light brownish gray (10YR 6/2) gravelly sandy clay loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure and moderate medium granular; slightly hard, friable, moderately sticky and slightly plastic; common very fine and fine and few medium roots; common fine, medium, and coarse vesicular pores; 15 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt1—7 to 13 inches; light brown (7.5YR 6/3) clay, brown (7.5YR 4/3) moist; strong medium angular blocky structure and strong fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine, common fine, and few medium roots; few fine and medium interstitial and tubular pores; many prominent continuous clay films on faces of peds; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.7); clear smooth boundary.

Bt2—13 to 19 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 4/4) moist; strong medium angular blocky structure and strong fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine and medium interstitial and tubular pores; many distinct continuous clay films on faces of peds; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.7); gradual smooth boundary.

Bkq—19 to 26 inches; pink (7.5YR 7/3) gravelly sandy clay loam, brown (7.5YR 4/4) moist; massive; hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine and medium interstitial and tubular pores; weakly cemented; 10 percent gravel and 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bkqm—26 to 28 inches; pink (7.5YR 7/4) cemented material, light brown (7.5YR 6/4) moist; massive; indurated with secondary silica; strongly effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to the duripan: 20 to 30 inches
Depth to bedrock: More than 60 inches
Depth to argillic horizon: 6 to 10 inches
Particle-size control section: Clay content—35 to 60 percent; rock fragment content—0 to 30 percent, mainly gravel

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly sandy loam
Clay content—14 to 18 percent
Rock fragment content—35 to 60 percent total, with 20 to 35 percent gravel, 15 to 25 percent cobbles, and 0 to 5 percent stones
Organic matter content—0.3 to 0.5 percent
Reaction—neutral or slightly alkaline

E horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 dry or moist
Texture—gravelly sandy clay loam, gravelly sandy loam, or very gravelly sandy loam
Clay content—16 to 24 percent
Rock fragment content—15 to 60 percent total, with 10 to 45 percent gravel and 5 to 15 percent cobbles
Organic matter content—0.2 to 0.4 percent
Reaction—neutral or slightly alkaline

Bt horizon
Hue—10YR or 7.5YR
Value—4 to 6 dry, 4 or 5 moist
Chroma—3 to 6 dry or moist
Texture—clay, gravelly clay, clay loam, or gravelly clay loam
Clay content—35 to 60 percent
Rock fragment content—0 to 25 percent total, with 0 to 25 percent gravel and 0 to 5 percent cobbles
Reaction—neutral to moderately alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bkq horizon
Hue—10YR or 7.5YR
Value—5 to 7 dry, 4 to 6 moist
Chroma—3 to 6 dry or moist
Texture—sandy clay loam, gravelly sandy clay loam, clay loam, or gravelly clay loam
Clay content—22 to 35 percent
Rock fragment content—0 to 30 percent total, with 0 to 30 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—1 to 5 percent
Sodicity (sodium adsorption ratio)—0 to 4
Effervescence—slightly effervescent or strongly effervescent

Bkqm horizon
Hue—7.5YR to 2.5Y
Value—5 to 8 dry, 4 to 7 moist
Chroma—2 to 6 dry or moist

Firelake Series

Depth class: Very shallow to bedrock
Drainage class: Somewhat excessively drained
Landscape: Hills
Landform: Hillslopes and structural benches
Parent material: Slope alluvium and residuum derived from volcanic rock such as tuff breccia
Slope range: 2 to 20 percent
Elevation: 4,500 to 5,070 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy, mixed, superactive, nonacid, mesic Lithic Xeric Torriorthents

Typical Pedon

Firelake very gravelly loamy coarse sand in an area of rangeland, in map unit 309, Firelake-Enko complex, 1 to 20 percent slopes; Lake County, Oregon; about 7 miles south of Buffalo Well and 100 yards west of jeep trail; 900 feet south and 1,150 feet west of the northeast corner of section 22, T. 28 S., R. 20 E.; U.S. Geological Survey Buffalo Well 7.5-minute topographic quadrangle; latitude 43 degrees, 7 minutes, 56 seconds north and longitude 120 degrees, 19 minutes, 49 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; light brownish gray (10YR 6/2) very gravelly loamy coarse sand, very dark grayish brown (10YR 3/2) moist; weak thick platy structure parting to moderate medium granular; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine and fine interstitial pores; 30 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.
Bw1—2 to 5 inches; brown (10YR 5/3) gravelly coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to strong medium granular; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; common very fine and fine interstitial pores; 15 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.
Bw2—5 to 7 inches; pale brown (10YR 6/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; few very fine and fine interstitial pores; 15 percent gravel; slightly alkaline (pH 7.7); abrupt smooth boundary.
R—7 inches; slightly fractured tuff breccia.

Range in Characteristics

Depth to bedrock: 4 to 10 inches
Particle-size control section: Clay content—6 to 16 percent by weighted average; rock fragment content—15 to 25 percent by weighted average, mainly gravel

A horizon
Chroma—2 or 3 dry or moist
Texture—very gravelly loamy coarse sand
Clay content—4 to 8 percent
Rock fragment content—25 to 45 percent total, with 25 to 45 percent gravel and 0 to 10 percent cobbles
Organic matter content—0.1 to 0.4 percent

Bw1 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry, 2 to 4 moist
Texture—gravelly coarse sandy loam or gravelly sandy loam
Clay content—8 to 16 percent
Rock fragment content—15 to 30 percent gravel

Bw2 horizon
Value—3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—sandy loam or gravelly sandy loam
Clay content—10 to 16 percent
Rock fragment content—10 to 20 percent gravel

Fitzwater Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Mountains, hills, and canyonlands
Landform: Mountain slopes, hillslopes, and canyon walls
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 60 percent

Elevation: 4,270 to 6,400 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Aridic Haploxerolls

Typical Pedon

Fitzwater very gravelly loamy sand in an area of rangeland, in map unit 408, Leevan-Fitzwater-Chen complex, 20 to 60 percent slopes; Lake County, Oregon; about 200 feet north and 2,000 feet west of the southeast corner of section 2, T. 30 S., R. 23 E.; U.S. Geological Survey Juniper Mountain 7.5-minute topographic quadrangle; latitude 42 degrees, 59 minutes, 24 seconds north and longitude 119 degrees, 57 minutes, 28 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) very gravelly loamy sand, dark brown (10YR 3/3) moist; weak thin platy structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine interstitial pores; 35 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

A2—3 to 7 inches; grayish brown (10YR 5/2) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine roots; common fine interstitial pores; 35 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); gradual smooth boundary.

Bw—7 to 33 inches; yellowish brown (10YR 5/4) extremely gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common fine roots; common fine interstitial pores; 65 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); gradual smooth boundary.

C—33 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; common fine interstitial pores; 60 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.6).

Range in Characteristics

Mollic epipedon thickness: 7 to 12 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—18 to 27 percent by weighted average; rock fragment content—50 to 80 percent by weighted average
Reaction: Neutral or slightly alkaline

A1 horizon
Value—3 to 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly loamy sand, very stony loam, extremely stony loam, or very cobbly loam
Clay content—3 to 22 percent
Rock fragment content—35 to 60 percent total, with 25 to 50 percent gravel, 5 to 15 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 3 percent

A2 horizon
Value—3 to 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Clay content—10 to 15 percent

Rock fragment content—35 to 60 percent total, with 25 to 50 percent gravel, 5 to 15 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 2 percent

Bw horizon
Hue—7.5Y or 10YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—extremely gravelly sandy loam, very gravelly loam, extremely gravelly loam, extremely cobbly loam, very cobbly loam, very cobbly clay loam, or extremely cobbly clay loam
Clay content—16 to 30 percent
Rock fragment content—50 to 80 percent total, with 15 to 65 percent gravel, 5 to 50 percent cobbles, and 0 to 15 percent stones

C horizon
Hue—7.5YR or 10YR
Value—5 or 6 dry
Chroma—3 or 4 dry
Texture—extremely cobbly loam, extremely stony loam, extremely cobbly sandy loam, extremely stony sandy loam, and extremely gravelly sandy loam
Clay content—15 to 25 percent
Rock fragment content—60 to 80 percent total, with 10 to 60 percent gravel, 15 to 50 percent cobbles, and 0 to 35 percent stones

Flagstaff Series

Depth class: Very deep to bedrock
Drainage class: Moderately well drained
Landscape: Basins
Landform: Lakebeds adjacent to slight depressions
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 1 percent
Elevation: 4,300 to 4,450 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Typic Aquisalids

Typical Pedon

Flagstaff ashy very fine sandy loam in an area of rangeland, in map unit 313, Flagstaff complex, 0 to 1 percent slopes; Lake County, Oregon; in the Buffalo Flat area of Christmas Lake Valley, about 13 miles east of the village of Christmas Valley and 4 miles west of Buffalo Well; 200 feet north and 1,200 feet west of the southeast corner of section 12, T. 27 S., R. 19 E.; U.S. Geological Survey Vaughn Well 7.5-minute topographic quadrangle; latitude 43 degrees, 14 minutes, 15.7 seconds north and longitude 120 degrees, 24 minutes, 40.3 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

AEn—0 to 4 inches; light brownish gray (2.5Y 6/2) ashy very fine sandy loam, dark grayish brown (2.5Y 4/2) moist; moderate thin platy structure, slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine and common fine vesicular pores; strongly alkaline (pH 8.8); clear smooth boundary.

Bn1—4 to 8 inches; pale brown (10YR 6/3) ashy silty clay loam, brown (10YR 5/3) moist; moderate fine angular blocky structure and moderate thin platy; slightly hard, firm, moderately sticky and moderately plastic; few very fine and fine and common medium roots; many very fine tubular pores and common very fine irregular pores; common faint light gray (10YR 7/2) silt coatings (skeletans) on faces of peds; strongly alkaline (pH 8.6); clear smooth boundary.

Bn2—8 to 12 inches; light yellowish brown (10YR 6/4) ashy silty clay loam, brown (10YR 5/3) moist; weak thin and medium platy structure; slightly hard, firm, moderately sticky and moderately plastic; few very fine and fine and common medium roots; many very fine irregular pores; common distinct light gray (10YR 7/2) silt coatings (skeletans) on faces of peds; strongly alkaline (pH 8.6); clear smooth boundary.

BCknz—12 to 16 inches; very pale brown (10YR 7/3) paragravelly ashy silt loam, brown (10YR 5/3) moist; strong very fine angular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine and common medium roots; many very fine irregular pores; 15 percent weakly cemented paragravel and 10 percent weakly cemented parachanners; soluble sodium salts segregated in irregularly shaped masses and in filaments; secondary carbonates segregated in common 1 millimeter rounded masses and in filaments; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

Cknqz—16 to 43 inches; light gray (10YR 7/2) extremely parachannery ashy silt loam, brown (10YR 5/3) moist; platy rock structure dominant in matrix, weak medium subangular blocky structure in fine-earth material; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots matted in cracks; 5- to 10-millimeter-wide vertical desiccation cracks; 80 percent weakly cemented parachanners; common distinct very pale brown (10YR 7/4) opal and silt coatings lining cracks; soluble sodium salts segregated in few fine irregularly shaped masses; secondary carbonates segregated in few fine filaments on pararock fragments; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Ckq—43 to 60 inches; light gray (10YR 7/2) and very pale brown (10YR 8/2) very parachannery ashy silty clay loam, brown (10YR 4/3) moist; platy rock structure; very hard, extremely firm, moderately sticky and moderately plastic; common very fine and fine roots matted in cracks and between pararock fragments; few very fine tubular pores; 2- to 5-millimeter-wide vertical desiccation cracks; 40 percent weakly cemented parachanners; few distinct light yellowish brown (10YR 6/4) opal and silt coatings lining cracks; few fine distinct relict masses of manganese accumulation that are black (10YR 2/1) moist and on pararock fragments adjacent to cracks and few fine faint relict masses of iron accumulation that are dark yellowish brown (10YR 4/4) moist and on pararock fragments; secondary carbonates segregated in few fine irregularly shaped coatings on pararock fragments; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C—60 to 69 inches; light gray (10YR 7/2) and very pale brown (10YR 8/2) very parachannery ashy loam, dark grayish brown (10YR 4/2) moist; platy rock structure; hard, very firm, moderately sticky and moderately plastic; common very fine and fine roots; few very fine tubular pores and many fine irregular pores; 2- to 5-millimeter-wide vertical desiccation cracks; few fine faint relict masses of manganese accumulation that are black (10YR 2/1) moist and on pararock fragments adjacent to cracks and few fine distinct relict masses of iron accumulation that are dark yellowish brown (10YR 4/4) moist and on pararock fragments; 40 percent weakly cemented parachanners; slightly effervescent in spots; strongly alkaline (pH 8.8); clear smooth boundary.

Cz—69 to 80 inches; light gray (10YR 7/2) paragravelly ashy loamy fine sand, dark grayish brown (10YR 4/2) moist; angular blocky rock structure; hard, very firm, nonsticky and nonplastic; common very fine and fine roots; few very fine tubular pores; few very thin laminae of black (10YR 2/1) sand; 20 percent weakly cemented paragravel; soluble sodium salts segregated in irregularly shaped masses; strongly alkaline (pH 8.8).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to secondary carbonates: 10 to 16 inches
Particle-size control section: Clay content—25 to 35 percent; pararock fragment content—30 to 80 percent
Volcanic glass content: 40 to 95 percent in the coarse silt and sand fractions
Depth to water table (perched): At the surface to a depth of 10 inches at some time during January through March
Ponding: Occasional; as high as 3 inches above the surface at some time during January through March
Depth to aquic conditions: At the surface to a depth of 10 inches
Other features: Pararock fragments consist of weakly cemented silty lacustrine deposits that are fractured and do not form a horizon or layer that restricts roots. Most of the fragments are water-stable and will not slake after air-drying and soaking in water for at least 1 hour.

AEn horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 to 5 moist
Chroma—1 or 2 dry, 1 to 3 moist
Texture—ashy very fine sandy loam, ashy sandy loam, or ashy silt loam
Clay content—10 to 18 percent
Reaction—moderately alkaline to very strongly alkaline
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—30 to 150
Organic matter content—0.1 to 0.3 percent

Bn horizons
Hue—10YR or 2.5Y
Value—5 to 8 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—ashy silty clay loam, ashy silt loam, ashy loam, or ashy clay loam
Clay content—20 to 35 percent
Reaction—moderately alkaline to very strongly alkaline
Salinity (electrical conductivity)—4 to 30 millimhos per centimeter
Sodicity (sodium adsorption ratio)—60 to 150
Redoximorphic features—few or common zones of iron or clay depletion on faces of peds

BCknz horizon
Hue—10YR or 2.5Y
Value—5 to 8 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—paragravelly ashy silt loam, parachannery ashy silt loam, or paragravelly ashy silty clay loam
Clay content—20 to 35 percent
Pararock fragment content—15 to 35 percent total, with 5 to 25 percent paragravel and 5 to 20 percent parachanners 75 to 150 millimeters in size
Reaction—strongly alkaline or very strongly alkaline

Calcium carbonate equivalent—5 to 12 percent
Salinity (electrical conductivity)—30 to 42 millimhos per centimeter
Sodicity (sodium adsorption ratio)—200 to 400

Cknqz horizon
Hue—10YR or 2.5Y
Value—5 to 8 dry, 3 to 5 moist
Chroma—1 to 3 dry, 2 to 4 moist
Texture—ashy silt loam, ashy loam, ashy silty clay loam, or ashy clay loam
Clay content—20 to 35 percent
Pararock fragment content—40 to 90 percent parachanners total, of which 15 to 50 percent are 2 to 75 millimeters in size and 20 to 45 percent are 75 to 150 millimeters in size
Reaction—strongly alkaline or very strongly alkaline
Calcium carbonate equivalent—1 to 12 percent
Salinity (electrical conductivity)—30 to 42 millimhos per centimeter
Sodicity (sodium adsorption ratio)—250 to 700

Ckq and C horizons
Hue—10YR or 2.5Y
Value—5 to 8 dry, 3 to 5 moist
Chroma—1 to 3 dry, 2 to 4 moist
Texture—ashy silty clay loam, ashy silt loam, ashy loam, or ashy clay loam
Clay content—20 to 35 percent
Pararock fragment content—40 to 90 percent parachanners total, of which 15 to 50 percent are 2 to 75 millimeters in size and 20 to 45 percent are 75 to 150 millimeters
Reaction—strongly alkaline or very strongly alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—16 to 32 millimhos per centimeter
Sodicity (sodium adsorption ratio)—300 to 600

Cz horizon
Hue—10YR or 2.5Y
Value—5 to 8 dry, 3 to 5 moist
Chroma—1 to 3 dry, 2 to 4 moist
Texture—paragravelly ashy loamy fine sand, paragravelly ashy fine sandy loam, or paragravelly ashy very fine sandy loam
Clay content—4 to 15 percent
Pararock fragment content—15 to 35 percent paragravel
Reaction—strongly alkaline or very strongly alkaline
Salinity (electrical conductivity)—16 to 32 millimhos per centimeter
Sodicity (sodium adsorption ratio)—300 to 600
Other features—ashy fine sand or ashy loamy sand in fine-earth fraction in some pedons

Taxadjunct Features

The Flagstaff soil in map unit 312 is a taxadjunct to the Flagstaff series. This soil is classified as coarse-loamy and mixed, and the series is classified as ashy and glassy. This soil has a water table at a depth of 24 to 40 inches due to endosaturation, and the series has a water table at the surface to a depth of 10 inches due to episaturation. The sodicity (sodium adsorption ratio) of this soil is 15 to 110, and that of the series is 30 to 700. This soil has an ash influence that results in assignment of an ashy textural modifier. This soil is on lake terraces with slopes that range to 8 percent, and the series is on lakebeds.

Foleylake Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Loess derived from mixed sources over residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 1 to 15 percent
Elevation: 4,700 to 6,200 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Abruptic Xeric Argidurids

Typical Pedon

Foleylake very cobbly loam in an area of rangeland, in map unit 231, Brace-Foleylake complex, 2 to 15 percent slopes; Lake County, Oregon; about 10 miles east of Lake Abert and 0.75 mile northeast of Foley Lake; 1,100 feet north and 1,600 feet east of the southwest corner of section 21, T. 33 S., R. 23 E.; U.S. Geological Survey Commodore Ridge 7.5-minute topographic quadrangle; latitude 42 degrees, 41 minutes, 26 seconds north and longitude 120 degrees, 0 minutes, 55 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; light brownish gray (10YR 6/2) very cobbly loam, dark brown (10YR 3/3) moist; moderate thick platy structure parting to moderate very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine vesicular pores; 20 percent gravel, 18 percent cobbles, and 12 percent stones; slightly alkaline (pH 7.6); abrupt smooth boundary.

BA—2 to 8 inches; light brownish gray (10YR 6/2) very cobbly loam, dark brown (10YR 3/3) moist; moderate very thick platy structure parting to moderate coarse subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; common very fine and fine tubular pores; 20 percent gravel, 18 percent cobbles, and 12 percent stones; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt—8 to 18 inches; yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to moderate fine and medium subangular blocky; hard, friable, very sticky and very plastic; many very fine and few fine and medium roots; common very fine tubular pores; many distinct clay films on faces of peds; 12 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

Btk—18 to 23 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine tubular pores; few faint clay films on faces of peds; 20 percent gravel and 5 percent cobbles; secondary carbonates segregated in filaments; slightly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bqkm—23 to 27 inches; very pale brown (10YR 7/3) and white (10YR 8/1) cemented material, yellowish brown (10YR 5/6) moist; massive; extremely hard; upper 2 inches is moderately cemented and lower 2 inches is indurated with secondary silica; very few very fine roots in fractures; common very fine tubular pores; few pockets of weakly cemented material; secondary carbonates segregated in common fine filaments; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

R—27 inches; welded tuff.

Range in Characteristics

Depth to the duripan: 21 to 25 inches

Depth to bedrock: 22 to 30 inches

Particle-size control section: Clay content—35 to 45 percent by weighted average; rock fragment content—15 to 30 percent, mainly gravel

Other features: Abrupt textural change—abrupt horizon boundary that has an increase in clay content of more than 20 percent commonly is between the BA and Bt horizons; lithology of fragments—volcanic rock such as welded tuff or basalt

A horizon
Chroma—2 or 3 dry or moist
Texture—very cobbly loam or very gravelly loam
Clay content—10 to 18 percent
Rock fragment content—35 to 55 percent total, with 15 to 40 percent gravel, 5 to 25 percent cobbles, and 0 to 15 percent stones
Reaction—slightly alkaline
Organic matter content—0.3 to 0.5 percent

BA horizon
Texture—very cobbly loam
Clay content—12 to 20 percent
Rock fragment content—35 to 55 percent total, with 15 to 30 percent gravel, 15 to 25 percent cobbles, and 5 to 15 percent stones
Reaction—slightly alkaline

Bt horizon
Hue—10YR or 7.5YR
Texture—gravelly clay
Clay content—40 to 50 percent
Rock fragment content—15 to 30 percent total, with 10 to 30 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline or moderately alkaline

Btk horizon
Hue—10YR or 7.5YR
Texture—gravelly clay loam
Clay content—28 to 40 percent
Rock fragment content—15 to 30 percent total, with 10 to 30 percent gravel and 0 to 5 percent cobbles
Reaction—moderately alkaline
Identifiable secondary carbonates—few fine coatings on rock fragments and faces of peds
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bkqm horizon
Cementation—weakly cemented or moderately cemented in the upper part of the duripan in some pedons and very strongly cemented or indurated in the lower part

Fort Rock Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins
Landform: Lake terraces
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff
Slope range: 0 to 8 percent
Elevation: 4,300 to 4,770 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy over sandy or sandy-skeletal, glassy over mixed, frigid Vitritorrandic Haploxerolls

Typical Pedon

Fort Rock very gravelly ashy coarse sandy loam in an area of rangeland, in map unit 218, Bonnick-Fort Rock complex, 1 to 8 percent slopes; Lake County, Oregon; in Fort Rock Valley, about 5 miles northeast of Fort Rock Homestead; 2,100 feet south and 300 feet east of the northwest corner of section 13, T. 25 S., R. 14 E.; U.S. Geological Survey Cougar Mountain 7.5-minute topographic quadrangle; latitude 43 degrees, 24 minutes, 28 seconds north and longitude 120 degrees, 59 minutes, 25 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated. When described on June 9, 1994, the soil was dry throughout.)

A—0 to 5 inches; grayish brown (10YR 5/2) very gravelly ashy coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine interstitial pores; 50 percent very pale brown (10YR 7/3), medium and coarse, sand-sized pumiceous ash grains; 40 percent fine gravel; slightly acid (pH 6.3); clear smooth boundary.

BA—5 to 16 inches; grayish brown (10YR 5/2) gravelly ashy loamy coarse sand, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine interstitial pores; 40 percent very pale brown (10YR 7/3), medium and coarse, sand-sized pumiceous ash grains; 15 percent fine gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bw1—16 to 28 inches; pale brown (10YR 6/3) ashy loamy sand, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; few very fine and fine interstitial pores; 30 percent very pale brown (10YR 7/3), medium and coarse, sand-sized pumiceous ash grains; 10 percent fine gravel; moderately alkaline (pH 8.1); clear smooth boundary.

2Bw2—28 to 35 inches; grayish brown (10YR 5/2) very gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; hard, firm, nonsticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 5 percent very pale brown (10YR 7/3), medium and coarse, sand-sized pumiceous ash grains; 40 percent fine gravel; moderately alkaline (pH 8.2); abrupt smooth boundary.

2Bq—35 to 39 inches; grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; strong medium and coarse subangular blocky structure; hard, firm and brittle, nonsticky and nonplastic; very weakly cemented with secondary silica; few fine roots; few very fine tubular pores; 40 percent fine gravel; moderately alkaline (pH 8.4); abrupt smooth boundary.

3C—39 to 60 inches; very dark gray (N 3/0) and light yellowish brown (2.5Y 6/4) extremely gravelly sand, brown (10YR 4/3) and very dark brown (10YR 2/2) moist; single grain; loose; few fine roots; many very fine interstitial pores; 70 percent fine gravel; slightly effervescent; strongly alkaline (pH 8.8).

Range in Characteristics

Mollic epipedon thickness: 7 to 10 inches
Depth to bedrock: More than 60 inches
Depth to strongly contrasting horizons: 25 to 35 inches
Particle-size control section: Clay content—2 to 10 percent by weighted average; rock fragment content, by weighted average—10 to 25 percent fine gravel in the upper part and 40 to 60 percent fine gravel in the contrasting lower part
Other features: Volcanic glass content—30 to 60 percent in the coarse sand and very coarse sand fractions of the A, BA, and Bw1 horizons and 5 to 20 percent in the underlying contrasting horizons; lithology of fragments—mainly basalt

A horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly ashy coarse sandy loam, ashy sandy loam, ashy loamy sand, gravelly ashy loamy sand, very gravelly ashy loamy sand, gravelly ashy sandy loam, very gravelly ashy sandy loam, or very gravelly ashy loam
Clay content—2 to 25 percent
Reaction—slightly acid to slightly alkaline
Organic matter content—1 to 2 percent

BA horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—gravelly ashy loamy coarse sand, ashy loamy coarse sand, gravelly ashy loamy sand, ashy loamy sand, gravelly ashy sandy loam, or ashy sandy loam
Clay content—5 to 12 percent
Rock fragment content—5 to 25 percent fine gravel
Reaction—neutral or slightly alkaline

Bw1 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—ashy loamy sand or gravelly ashy loamy sand
Clay content—5 to 12 percent
Rock fragment content—0 to 30 percent fine gravel
Reaction—slightly alkaline or moderately alkaline

2Bw2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly loamy sand or gravelly loamy sand
Clay content—2 to 10 percent
Rock fragment content—15 to 40 percent fine gravel
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 5

2Bq horizon
Value—5 or 6 dry, 2 to 4 moist
Chroma—2 or 3 dry or moist

Texture—gravelly sandy loam, very gravelly sandy loam, gravelly loamy sand, or very gravelly loamy sand
Clay content—2 to 10 percent
Rock fragment content—15 to 40 percent fine gravel
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 7

3C horizon
Hue—10YR or 2.5Y, or neutral
Texture—very gravelly sand or extremely gravelly sand
Clay content—1 to 5 percent
Rock fragment content—50 to 70 percent fine gravel
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 10

Fossilake Series

Depth class: Very deep to bedrock
Drainage class: Somewhat poorly drained
Landscape: Basins
Landform: Depressions of lakebeds
Parent material: Eolian and lacustrine deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Elevation: 4,290 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, calcareous, frigid Aquandic Halaquepts

Typical Pedon

Fossilake ashy fine sandy loam, 0 to 1 percent slopes, in an area of rangeland, in map unit 326, Lake County, Oregon; about 17 miles northeast of the village of Christmas Valley and east of Sucker Flat; about 1,500 feet south and 2,800 feet east of the northwest corner of section 3, T. 26 S., R. 19 E.; U.S. Geological Survey Fossil Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 21 minutes, 6 seconds north and longitude 120 degrees, 26 minutes, 51 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

Anz1—0 to 1 inch; light gray (10YR 7/2) ashy fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure parting to moderate very fine granular; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine interstitial pores; soluble sodium salts as many fine crystals throughout and as a 2-millimeter-thick white (10YR 8/1) crust on surface; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

Anz2—1 to 3 inches; light brownish gray (10YR 6/2) ashy very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak very thick platy structure parting to moderate thick platy; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine interstitial pores; soluble sodium salts as few fine crystals throughout; strongly effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

Bn1—3 to 7 inches; light gray (10YR 7/1) ashy very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak coarse subangular blocky structure parting to moderate medium subangular blocky; soft, very friable, slightly sticky and slightly plastic; few very fine and fine and common medium roots; few very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

Bn2—7 to 15 inches; light gray (10YR 7/2) ashy silt loam, brown (10YR 4/3) and dark grayish brown (10YR 4/2) moist; weak thick platy structure parting to moderate medium subangular blocky; soft, very friable, slightly sticky and moderately plastic; few very fine, common fine, and few medium roots; few very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

Cn—15 to 31 inches; light gray (10YR 7/1), stratified ashy loam to ashy loamy sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine interstitial pores; stratification of material is evident; slightly effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

Bknb—31 to 43 inches; pale yellow (2.5Y 7/3) ashy loam, olive brown (2.5Y 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine tubular pores; common fine faint masses of iron accumulation that are brown (7.5YR 4/3) moist and common medium distinct masses of iron accumulation that are brown (7.5YR 4/4) moist and are throughout; secondary carbonates segregated as few fine irregular coatings on faces of peds; strongly effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

BCb—43 to 50 inches; pale yellow (2.5Y 7/3) ashy loam, olive brown (2.5Y 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine tubular pores; common fine faint masses of iron accumulation that are brown (7.5YR 4/3) moist and are throughout and common medium distinct masses of iron accumulation that are brown (7.5YR 4/4) moist and are throughout; strongly effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.

BCgb—50 to 66 inches; white (5Y 8/1) ashy silt loam, pale olive (5Y 6/4) moist; weak coarse subangular blocky structure parting to moderate fine angular blocky; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine tubular pores; common medium prominent masses of iron accumulation that are brown (7.5YR 4/4) moist and few medium prominent zones of iron depletion that are greenish gray (5G 6/1) moist; strongly effervescent; strongly alkaline (pH 8.8).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—8 to 18 percent
Depth to water table: Within a depth of 30 inches of the soil surface at some time during April through June (apparent) and within a depth of 48 inches of the soil surface the rest of the year
Ponding: Frequent; as high as 6 inches above the soil surface at some time during February through June
Depth to aquic conditions: 30 to 50 inches
Depth to buried horizons: 30 to 40 inches
Volcanic glass content: 30 to 95 percent in coarse silt to fine sand fractions

Anz1 horizon
Value—6 or 7 dry, 4 or 5 moist
Texture—ashy fine sandy loam, ashy loamy fine sand, or ashy silt loam
Clay content—4 to 20 percent

Reaction—very strongly alkaline
Calcium carbonate equivalent—2 to 6 percent
Salinity (electrical conductivity)—16 to 30 millimhos per centimeter
Sodicity (sodium adsorption ratio)—30 to 100
Effervescence—strongly effervescent or violently effervescent
Organic matter content—0.1 to 0.5 percent

Anz2 horizon
Value—6 or 7 dry, 4 or 5 moist
Texture—ashy very fine sandy loam
Clay content—8 to 16 percent
Reaction—very strongly alkaline
Calcium carbonate equivalent—2 to 4 percent
Salinity (electrical conductivity)—16 to 30 millimhos per centimeter
Sodicity (sodium adsorption ratio)—30 to 100
Effervescence—strongly effervescent or violently effervescent
Organic matter content—0.1 to 0.4 percent

Bn horizon
Value—4 or 5 moist
Chroma—1 or 2 dry, 2 or 3 moist
Texture—ashy very fine sandy loam, ashy silt loam, or ashy sandy clay loam
Clay content—10 to 26 percent
Reaction—very strongly alkaline
Calcium carbonate equivalent—2 to 4 percent
Salinity (electrical conductivity)—16 to 30 millimhos per centimeter
Sodicity (sodium adsorption ratio)—30 to 100
Effervescence—strongly effervescent or violently effervescent

Cn horizon
Texture—stratified ashy loamy sand to ashy loam
Clay content—8 to 24 percent
Reaction—very strongly alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 60
Effervescence—slightly effervescent or strongly effervescent

Bknb horizon
Hue—10YR or 2.5Y
Value—4 or 5 moist
Texture—ashy loam or ashy clay loam
Clay content—24 to 35 percent
Reaction—very strongly alkaline
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30
Identifiable secondary carbonates—few fine or medium coatings on faces of peds
Calcium carbonate equivalent—2 to 10 percent
Redoximorphic features—concentrations occur as masses of iron accumulation

BCb and BCgb horizons
Hue—2.5Y or 5Y
Texture—ashy loam or ashy silt loam
Clay content—18 to 27 percent
Reaction—strongly alkaline
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter

Sodicity (sodium adsorption ratio)—5 to 13
Calcium carbonate equivalent—2 to 4 percent
Redoximorphic features—concentrations occur as masses of iron accumulation; depletions occur as zones of iron depletion or as a reduced matrix in some areas

Freznik Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Residuum and colluvium derived from volcanic rock such as tuff or basalt
Slope range: 1 to 5 percent
Elevation: 4,640 to 6,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Xeric Paleargids

Typical Pedon

Typical pedon of Freznik very cobbly loam in an area of rangeland, in map unit 205, Anawalt-Freznik complex, 1 to 5 percent slopes; Lake County, Oregon; about 400 feet south and 1,800 feet west of the northeast corner of section 6, T. 35 S., R. 22 E.; U.S. Geological Survey Abert Lake South topographic quadrangle; latitude and longitude not available. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 20 percent gravel, 20 percent cobbles, and 5 percent stones; neutral (pH 7.2); abrupt smooth boundary.

Bt1—2 to 11 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, very firm, very sticky and very plastic; common very fine and fine roots; few very fine tubular pores; many prominent continuous clay films on faces of peds; neutral (pH 7.0); abrupt smooth boundary.

Bt2—11 to 17 inches; light brown (7.5YR 6/3) clay, brown (7.5YR 4/3) moist; weak medium prismatic structure parting to moderate medium angular blocky; hard, firm, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; common distinct continuous clay films on faces of peds; neutral (pH 7.0); clear smooth boundary.

Btk—17 to 23 inches; light brown (7.5YR 6/4) clay, brown (7.5YR 4/4) moist; moderate medium angular blocky structure parting to weak fine angular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few very fine tubular pores; common distinct continuous clay films on faces of peds; few fine and medium masses of carbonates on faces of peds; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.

C—23 to 31 inches; light brown (7.5YR 6/3) clay loam, brown (7.5YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; strongly effervescent; moderately alkaline (pH 7.4); abrupt smooth boundary.

R—31 inches; basalt.

Range in Characteristics

Depth to bedrock: 20 to 35 inches
Depth to top of argillic horizon: 2 to 6 inches
Particle-size control section: Clay content—40 to 60 percent; rock fragment content—0 to 35 percent
Other features: An absolute clay increase of 15 to 25 percent is between the A and Bt horizons.

A horizon
Value—3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loam
Clay content—18 to 24 percent
Rock fragment content—35 to 60 percent total, with 15 to 25 percent gravel, 15 to 30 percent cobbles, and 0 to 5 percent stones
Organic matter content—0.5 to 1.5 percent

Bt and Btk horizons
Hue—10YR or 7.5YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—3 to 6 dry or moist
Texture—clay or cobbly clay
Clay content—40 to 60 percent
Rock fragment content—0 to 35 percent, with 0 to 15 percent gravel, 0 to 20 percent cobbles, and 0 to 2 percent stones
Reaction—neutral to moderately alkaline
Calcium carbonate equivalent—0 to 1 percent in the Btk horizon
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

C horizon
Hue—10YR or 7.5YR
Chroma—3 or 4 dry or moist
Texture—clay loam
Clay content—30 to 40 percent
Rock fragment content—0 to 15 percent total, with 0 to 15 percent gravel, 0 to 2 percent cobbles, and 0 to 2 percent stones
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2
Other features—C horizon only in some pedons

Characteristics Outside Range of Series

The Freznik soils in this survey area have a Btk and C horizon, have slopes of 1 to 5 percent, and are well drained.

Giranch Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Basins
Landform: Fan remnants
Parent material: Volcanic ash mixed with alluvium derived from mixed volcanic rock
Slope range: 2 to 20 percent
Elevation: 4,480 to 4,950 feet

Mean annual precipitation: 11 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Vitritorrandic Durixerolls

Typical Pedon

Giranch gravelly ashy loam in an area of rangeland, in map unit 442, Meld-Giranch complex, 2 to 20 percent slopes; Lake County, Oregon; about 1,400 feet south and 700 feet east of the northwest corner of section 14, T. 23 S., R. 22 E.; U.S. Geological Survey Glass Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 34 minutes, 54.7 seconds north and longitude 120 degrees, 3 minutes, 5.6 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; weak coarse and medium granular structure; slightly hard, very friable, moderately sticky and moderately plastic; many very fine and fine roots; many very fine irregular pores; 15 percent gravel and 5 percent cobbles; neutral (pH 7.0); clear smooth boundary.

A2—4 to 11 inches; grayish brown (10YR 5/2) gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse and medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; many very fine and common fine and medium roots; many very fine irregular pores; 20 percent gravel and 5 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

Bt1—11 to 23 inches; brown (7.5YR 4/4) very gravelly ashy sandy clay loam, dark brown (7.5YR 3/3) moist; strong fine angular blocky structure; hard, very firm, very sticky and very plastic; common very fine, fine, and medium roots; common very fine tubular pores; 35 percent gravel, 15 percent cobbles, and 5 percent stones; many distinct clay films on faces of peds; dark grayish brown (10YR 4/2) organic coatings on faces of peds in upper 3 inches of horizon; neutral (pH 7.0); gradual smooth boundary.

Bt2—23 to 29 inches; brown (7.5YR 4/3) gravelly clay, brown (7.5YR 4/3) moist; strong fine prismatic structure parting to strong fine angular blocky; hard, very firm, very sticky and very plastic; common very fine, fine, and medium roots; common very fine tubular pores; 20 percent gravel and 10 percent cobbles; many distinct clay films on faces of peds; neutral (pH 7.2); clear smooth boundary.

Btq—29 to 33 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; strong medium and thick platy structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine irregular pores; 10 percent gravel; many distinct clay films that are brown (10YR 4/3) dry and on faces of peds; many distinct silt coatings on faces of peds; about 25 percent of matrix is very weakly cemented with opaline silica; neutral (pH 7.3); clear smooth boundary.

2Bkqm—33 to 60 inches; light yellowish brown (10YR 6/4) and brown (10YR 4/3) cemented material, yellowish brown (10YR 5/4) and dark brown (10YR 3/3) moist; moderate very thick platy structure; extremely hard; very strongly cemented with secondary silica; common 1- to 2-millimeter-thick horizontal opaline silica coatings on top of peds; secondary carbonates segregated as few fine filaments in matrix; slightly effervescent in spots.

Range in Characteristics

Mollic epipedon thickness: 8 to 23 inches
Depth to the duripan: 22 to 36 inches
Depth to bedrock: More than 80 inches

Particle-size control section: Clay content—35 to 50 percent by weighted average; rock fragment content—35 to 60 percent by weighted average

A horizon
Chroma—2 or 3 dry or moist
Texture—gravelly ashy loam or cobbly ashy very fine sand
Clay content—4 to 25 percent
Rock fragment content—15 to 35 percent total, with 5 to 25 percent gravel, 0 to 25 percent cobbles, and 0 to 5 percent stones
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions
Organic matter content—2 to 4 percent
Reaction—neutral
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bt1 horizon
Hue—7.5YR or 10YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very gravelly ashy sandy clay loam or very stony ashy clay loam
Clay content—30 to 40 percent
Rock fragment content—40 to 60 percent total, with 15 to 60 percent gravel, 0 to 15 percent cobbles, and 0 to 25 percent stones
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bt2 horizon
Hue—7.5YR or 10YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—gravelly clay or very stony clay
Clay content—40 to 55 percent
Rock fragment content—30 to 60 percent total, with 20 to 25 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter

Btq horizon
Value—5 or 6 dry
Chroma—3 or 4 dry or moist
Texture—clay loam
Clay content—27 to 40 percent
Rock fragment content—0 to 15 percent total, with 0 to 10 percent gravel, 0 to 5 percent cobbles, and 0 to 5 percent stones
Reaction—neutral or slightly alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter

Bkqm horizon
Cementation—strongly cemented to indurated

Glassbutte Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Mountains
Landform: Mountain slopes

Parent material: Volcanic ash and colluvium over residuum derived from volcanic rock such as rhyolite, rhyodacite, or basalt
Slope range: 20 to 65 percent
Elevation: 4,640 to 5,760 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Vitritorrandic Argixerolls

Typical Pedon

Glassbutte gravelly ashy fine sandy loam in an area of rangeland, in map unit 675, Wildcatbutte-Chesebro-Glassbutte complex, 20 to 65 percent slopes; Lake County, Oregon; about 600 feet south and 2,100 feet west of the northeast corner of section 34, T. 23 S., R. 23 E.; U.S. Geological Survey Hat Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 32 minutes, 25 seconds north and longitude 119 degrees, 56 minutes, 30 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and fine and few medium tubular and interstitial pores; 20 percent gravel and 5 percent cobbles; neutral (pH 7.0); clear smooth boundary.

A2—4 to 12 inches; brown (10YR 5/3) gravelly ashy fine sandy loam, dark brown (10YR 3/3) moist; strong medium granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine interstitial pores and few fine tubular pores; 25 percent gravel and 5 percent cobbles; neutral (pH 7.0); clear smooth boundary.

Bt—12 to 23 inches; yellowish brown (10YR 5/4) extremely gravelly ashy sandy clay loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, moderately sticky and slightly plastic; soft, very friable, moderately sticky and slightly plastic; common very fine and few fine roots; common very fine, many fine, and few medium interstitial and tubular pores; few faint clay films bridging sand grains; 50 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.4); gradual smooth boundary.

2Bk—23 to 46 inches; pale brown (10YR 6/3) extremely cobbly ashy loamy coarse sand, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and few fine roots; common fine and few medium tubular and interstitial pores; 40 percent gravel and 35 percent cobbles; secondary calcium carbonates segregated as many thin (less than 1 millimeter) coatings on rock fragments and as few fine masses throughout matrix; strongly effervescent; slightly alkaline (pH 7.8); gradual smooth boundary.

2Ck—46 to 61 inches; very pale brown (10YR 7/4) extremely cobbly ashy loamy sand, yellowish brown (10YR 5/4) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; common fine interstitial pores; 40 percent gravel and 40 percent cobbles; secondary calcium carbonates segregated as few medium and coarse coatings on bottom of rock fragments; strongly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Mollic epipedon thickness: 20 to 30 inches, includes the Bt horizon in some pedons
Depth to bedrock: More than 60 inches

Depth to textural stratification: 20 to 40 inches
Depth to secondary carbonates: 20 to 40 inches
Particle-size control section: Clay content—20 to 30 percent; rock fragment content—60 to 80 percent
Volcanic glass content: 60 to 90 percent in coarse silt to fine sand fractions

A1 horizon
Chroma—2 or 3 dry or moist
Texture—gravelly ashy fine sandy loam
Clay content—8 to 18 percent
Rock fragment content—15 to 30 percent total, with 15 to 25 percent gravel and 0 to 10 percent cobbles
Reaction—neutral or slightly alkaline
Organic matter content—2 to 4 percent

A2 horizon
Texture—gravelly ashy fine sandy loam, gravelly ashy loam, or very gravelly ashy loam
Clay content—15 to 25 percent
Rock fragment content—20 to 55 percent total, with 20 to 50 percent gravel and 0 to 5 percent cobbles
Reaction—neutral or slightly alkaline
Organic matter content—2 to 4 percent

Bt horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—extremely gravelly ashy sandy clay loam or extremely cobbly clay loam
Clay content—20 to 30 percent
Rock fragment content—60 to 80 percent total, with 20 to 65 percent gravel, 10 to 40 percent cobbles, and 0 to 3 percent stones
Reaction—neutral or slightly alkaline

2Bk horizon
Texture—extremely cobbly ashy loamy coarse sand
Rock fragment content—60 to 80 percent total, with 30 to 40 percent gravel, 25 to 40 percent cobbles, and 0 to 3 percent stones
Reaction—slightly alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

2Ck horizon
Value—6 or 7 dry, 4 or 5 moist
Texture—extremely cobbly ashy loamy sand or extremely cobbly ashy sandy loam
Clay content—6 to 18 percent
Rock fragment content—60 to 80 percent total, with 30 to 40 percent gravel, 25 to 40 percent cobbles, and 0 to 3 percent stones
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Taxadjunct Features

The Glassbutte soils in map units 428 and 429 are a taxadjunct to the Glassbutte series. These soils are classified as ashy-skeletal over fragmental or cindery, and the series is classified as ashy-skeletal. These soils do not have an argillic horizon, have a mean annual precipitation that ranges to as high as 16 inches, and have slopes that range to 15 percent. The Glassbutte soils in these units are on cinder cones, and the Glassbutte series is on mountain slopes.

Glencabin Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes and buttes
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or tuff
Slope range: 15 to 65 percent
Elevation: 4,340 to 6,010 feet
Mean annual precipitation: 10 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Vitrandic Haploxerolls

Typical Pedon

Glencabin gravelly ashy loam, 30 to 65 percent north slopes; in an area of rangeland, in map unit 330, Lake County, Oregon; about 1,200 feet east and 500 feet south of the northwest corner of section 24, T. 24 S., R. 15 E.; U.S. Geological Survey Hogback Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 29 minutes, 1 second north and longitude 120 degrees, 52 minutes, 5 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 5 inches; brown (10YR 4/3) gravelly ashy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; 30 percent gravel; neutral (pH 6.6); clear smooth boundary.
A2—5 to 11 inches, brown (10YR 4/3) cobbly ashy sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine, fine, and medium roots; many very fine interstitial pores; 5 percent gravel, 15 percent cobbles, and 10 percent stones; neutral (pH 7.0); clear smooth boundary.
2A3—11 to 17 inches; brown (10YR 4/3) extremely cobbly ashy sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; 20 percent gravel and 40 percent cobbles; neutral (pH 7.0); clear wavy boundary.
2A4—17 to 25 inches; brown (10YR 4/3) extremely cobbly ashy loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; 15 percent gravel, 40 percent cobbles, and 15 percent stones; neutral (pH 7.0); clear smooth boundary.
2R—25 inches; rhyolite.

Range in Characteristics

Mollic epipedon thickness: 20 to 27 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—10 to 20 percent; rock fragment content—15 to 40 in the upper part and 50 to 70 percent in the lower part
Reaction: Slightly acid or neutral
Volcanic glass content: 30 to 60 percent in the coarse silt to fine sand fractions

A1 horizon
Value—4 or 5 dry
Chroma—2 or 3 dry or moist
Texture—gravelly ashy loamy sand, gravelly ashy loam, ashy loamy sand, gravelly ashy sandy loam, very gravelly ashy sandy loam, cobbly ashy fine sandy loam, or very cobbly ashy fine sand
Clay content—2 to 25 percent
Rock fragment content—0 to 60 percent total, with 0 to 45 percent gravel, 0 to 35 percent cobbles, and 0 to 15 percent stones
Organic matter content—1 to 3 percent

A2 horizon
Value—4 or 5 dry
Chroma—2 to 3 dry or moist
Texture—cobbly ashy sandy loam
Clay content—10 to 20 percent
Rock fragment content—15 to 35 percent total, with 5 to 20 percent gravel, 10 to 25 percent cobbles, and 0 to 10 percent stones
Organic matter content—1 to 2 percent

2A1 and 2A2 horizons
Value—4 or 5 dry
Chroma—2 to 3 dry or moist
Texture—extremely cobbly ashy loam, extremely cobbly ashy sandy loam, or very gravelly ashy loamy sand
Clay content—5 to 20 percent
Rock fragment content—35 to 80 percent total, with 10 to 30 percent gravel, 15 to 50 percent cobbles, and 10 to 20 percent stones
Organic matter content—1.0 to 1.5 percent

Taxadjunct Features

The Glencabin soil in map unit 514 is a taxadjunct to the Glencabin series because it is classified as ashy and is 40 to 80 inches to welded tuff.

Goodtack Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or tuff breccia
Slope range: 1 to 20 percent
Elevation: 4,310 to 5,170 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid, shallow Vitritorrandic Durixerolls

Typical Pedon

Goodtack ashy very fine sandy loam, 2 to 10 percent slopes; in an area of rangeland, in map unit 338, Lake County, Oregon; about 1 mile north of the Lost Forest Research Natural Area; about 750 feet north and 1,500 feet east of the southwest corner of section 12, T. 25 S.,R. 20 E.; U.S. Geological Survey Moonlight

Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 24 minutes, 56 seconds north and longitude 120 degrees, 16 minutes, 13 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated. The soil was dry throughout when described on October 17, 2002.)

A1—0 to 3 inches; grayish brown (10YR 5/2) ashy very fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to weak coarse, medium, and fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine interstitial pores; slightly alkaline (pH 7.6); clear smooth boundary.

A2—3 to 7 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores and common very fine tubular pores; slightly alkaline (pH 7.6); clear smooth boundary.

Bt—7 to 13 inches; pale brown (10YR 6/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine tubular pores; common faint brown (10YR 5/3) clay films on faces of peds; slightly alkaline (pH 7.6); clear smooth boundary.

Btq—13 to 19 inches; pale brown (10YR 6/3) ashy sandy clay loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine tubular pores; common faint brown (10YR 5/3) clay films on faces of peds; common faint silica coatings on faces of peds; 5 percent gravel-sized detached fragments of duripan; slightly alkaline (pH 7.8); clear smooth boundary.

Bkqm—19 to 46 inches; very pale brown (10YR 8/2) cemented material; strong thick platy structure parting to strong medium platy; very rigid; indurated with secondary silica; thin laminar caps of opaline silica on top of horizon; strongly effervescent; secondary carbonates segregated as coatings on faces of peds; abrupt smooth boundary.

R—46 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 18 inches, may include part of the Bt horizon
Depth to the duripan: 16 to 20 inches
Depth to bedrock: 20 to 48 inches
Particle-size control section: Clay content—18 to 26 percent; rock fragment content—0 to 10 percent
Volcanic glass content: 30 to 75 percent in the coarse silt to fine sand fractions

A1 horizon
Value—5 or 6 dry, 3 or 4 moist (averages 5 dry and 3 moist where mixed)
Chroma—2 or 3 dry or moist
Texture—ashy very fine sandy loam, ashy coarse sandy loam, ashy loamy fine sand, ashy sandy loam, cobbly ashy very fine sandy loam, gravelly ashy coarse sandy loam, ashy loamy very fine sand, ashy loam, or gravelly ashy loamy fine sand
Clay content—2 to 25 percent
Rock fragment content—0 to 35 percent total, with 0 to 35 percent gravel and 0 to 20 percent cobbles
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

A2 horizon
Value—5 or 6 dry, 3 or 4 moist (averages 5 dry and 3 moist where mixed)
Chroma—2 or 3 dry or moist
Texture—ashy fine sandy loam or ashy sandy loam
Clay content—8 to 14 percent
Rock fragment content—0 to 10 percent gravel
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bt and Btq horizons
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 moist or dry
Texture—ashy sandy clay loam, ashy fine sandy loam, or ashy loam
Clay content—18 to 26 percent
Rock fragment content—0 to 10 percent gravel
Pararock fragment content—0 to 10 percent
Reaction—slightly alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 4

Bqkm horizon
Cementation—moderately cemented to indurated with secondary silica

Gradon Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Basins
Landform: Fan remnants
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 0 to 8 percent
Elevation: 4,400 to 5,260 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine-loamy, mixed, superactive, frigid Argiduridic Durixerolls

Typical Pedon

Gradon gravelly fine sandy loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; about 1/4 mile south of Chickahominy Reservoir; about 350 feet south and 150 feet east of the northwest corner of section 33, T. 23 S., R. 26 E.; U.S. Geological Survey Riley 7.5-minute topographic quadrangle; latitude 43 degrees, 32 minutes, 19 seconds north and longitude 119 degrees, 36 minutes, 55 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 5/3) gravelly fine sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to weak fine granular; soft, very friable, slightly sticky and nonplastic; many very fine, common fine, and few medium roots; many very fine, common fine, and few medium vesicular pores; 20 percent gravel; neutral (pH 7.0); clear smooth boundary.

A2—3 to 10 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to weak fine granular; slightly hard, very friable, moderately sticky and moderately plastic; common very fine and fine and few medium roots; few very fine and medium and common fine tubular pores; 5 percent gravel; neutral (pH 7.2); clear smooth boundary.

Bt—10 to 22 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium angular blocky structure parting to strong fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and medium and common fine roots; few very fine, fine, and medium tubular pores; common distinct clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

Btkq—22 to 32 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; hard, firm and brittle, slightly sticky and plastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; common faint clay films on faces of peds; strongly effervescent with disseminated carbonates; 15 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bkqm1—32 to 48 inches; very pale brown (10YR 7/3) cemented material, brown (10YR 5/3) moist; massive; indurated with silica and secondary carbonates; violently effervescent; secondary carbonates are disseminated in matrix and segregated in common fine irregular seams and filaments; gradual smooth boundary.

Bkqm2—48 to 55 inches; very pale brown (10YR 7/4) cemented material, yellowish brown (10YR 5/4) moist; massive; strongly cemented with silica and secondary carbonates; violently effervescent; secondary carbonates are disseminated in matrix and segregated in common fine irregular seams and filaments; gradual smooth boundary.

C—55 to 62 inches; pale brown (10YR 6/3) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, slightly sticky and slightly plastic; moderately alkaline (pH 8.0).

Range in Characteristics

Mollic epipedon thickness: 7 to 12 inches
Depth to the duripan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—25 to 35 percent; rock fragment content—5 to 25 percent gravel

A1 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly fine sandy loam
Clay content—12 to 18 percent
Rock fragment content—15 to 35 percent gravel
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

A2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—loam
Clay content—15 to 25 percent
Rock fragment content—0 to 10 percent gravel
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

Bt horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—loam, clay loam, or gravelly sandy clay loam
Clay content—25 to 35 percent
Rock fragment content—5 to 25 percent gravel
Reaction—neutral or slightly alkaline

Btkq horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—gravelly sandy loam
Clay content—25 to 35 percent
Rock fragment content—15 to 25 percent gravel
Reaction—neutral or slightly alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bkqm horizon
Cementation—Indurated

C horizon
Texture—sandy loam or gravelly sandy loam
Clay content—5 to 15 percent
Rock fragment content—0 to 30 percent gravel
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Greenmountain Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Elevation: 4,320 to 5,210 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Durixerolls

Typical Pedon

Greenmountain ashy sandy loam in an area of rangeland, in map unit 346, Greenmountain-Jacksplace complex, 2 to 15 percent slopes; Lake County, Oregon; about 1 mile north of the Bureau of Land Management fire lookout tower and 50 feet east of the Green Mountain road; about 388 feet south and 50 feet east of the northwest corner of section 19, T. 25 S., R. 17 E.; U.S. Geological Survey Jacks Place 7.5-minute topographical quadrangle; latitude 43 degrees, 23 minutes, 53 seconds north and longitude 120 degrees, 43 minutes, 59 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to moderate medium granular; soft, very friable, slightly sticky and nonplastic; many very fine, common fine, and few medium roots; common very fine, fine, and medium interstitial and tubular pores; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); abrupt smooth boundary.

A2—3 to 13 inches; grayish brown (10YR 5/2) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; common very fine and fine and few medium interstitial and tubular pores; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.5); clear smooth boundary.

Bt—13 to 17 inches; brown (10YR 5/3) cobbly ashy sandy loam, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common very fine and fine and few medium tubular pores; 5 percent gravel and 10 percent cobbles; common faint clay films on faces of peds; slightly alkaline (pH 7.5); clear smooth boundary.

Btq—17 to 24 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common very fine and few fine and medium tubular pores; 5 percent gravel and 5 percent cobbles; 20 percent firm, very weakly cemented durinodes; common faint clay films on faces of peds; slightly alkaline (pH 7.5); clear smooth boundary.

Bq—24 to 37 inches; brown (10YR 5/3) cobbly ashy fine sandy loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine, fine, and medium roots; few very fine, fine, and medium tubular pores; 5 percent gravel and 10 percent cobbles; 40 percent moderately cemented durinodes; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bkqm—37 to 42 inches; pale brown (10YR 6/3) cemented material, dark yellowish brown (10YR 4/4) moist; strong very thick platy structure parting to strong medium platy; very rigid; indurated with secondary silica and carbonates; laminar silica coatings 2 millimeters thick on top of horizon; 10 percent gravel and 20 percent cobbles; secondary calcium carbonates segregated as thin (less than 2 millimeters) coatings on rock fragments; strongly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bkq—42 to 65 inches; pale brown (10YR 6/3) cobbly ashy very fine sandy loam, dark yellowish brown (10YR 3/4) moist; weak thick platy structure parting to strong medium platy; hard, friable, slightly sticky and slightly plastic; common very fine and few fine tubular pores; faint silica coatings on faces of peds; 10 percent gravel and 10 percent cobbles; secondary calcium carbonates segregated as few thin (less than 2 millimeters) coatings on rock fragments; slightly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Mollic epipedon thickness: 8 to 14 inches
Depth to the duripan: 30 to 40 inches
Depth to bedrock: 50 to 60 inches or more
Depth to durinodes: 12 to 27 inches
Depth to secondary carbonates: 30 to 40 inches
Particle-size control section: Clay content—16 to 22 percent by weighted average; rock fragment content—10 to 30 percent

A1 horizon
Texture—ashy sandy loam, ashy fine sandy loam, or gravelly ashy sandy loam
Clay content—6 to 10 percent

Rock fragment content—3 to 35 percent total, with 3 to 25 percent gravel and 0 to 10 percent cobbles
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

A2 horizon
Texture—ashy sandy loam
Clay content—10 to 14 percent
Rock fragment content—3 to 15 percent total, with 3 to 10 percent gravel and 0 to 5 percent cobbles
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

Bt horizon
Texture—cobbly ashy sandy loam
Clay content—16 to 20 percent
Rock fragment content—15 to 30 percent total, with 3 to 15 percent gravel and 10 to 15 percent cobbles
Reaction—neutral or slightly alkaline

Btq horizon
Texture—ashy sandy loam, ashy sandy clay loam, gravelly ashy sandy loam, or gravelly ashy sandy clay loam
Clay content—17 to 28 percent
Rock fragment content—10 to 25 percent total, with 3 to 15 percent gravel and 5 to 10 percent cobbles
Pararock fragment content—10 to 25 percent weakly cemented durinodes
Reaction—neutral or slightly alkaline

Bq horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry, 2 to 4 moist
Texture—cobbly ashy fine sandy loam
Clay content—12 to 20 percent
Rock fragment content—15 to 35 percent total, with 3 to 20 percent gravel and 10 to 15 percent cobbles
Pararock fragment content—20 to 50 percent weakly cemented or moderately cemented durinodes
Reaction—neutral or slightly alkaline

Bkqm horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist

Bkq horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—cobbly ashy fine sandy loam
Clay content—12 to 20 percent
Rock fragment content—15 to 30 percent total, with 3 to 15 percent gravel and 10 to 15 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Hackwood Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Mountains
Landform: Escarpments
Parent material: Colluvium derived from volcanic rock such as basalt
Slope range: 15 to 35 percent
Elevation: 5,860 to 6,290 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 30 to 60 days

Taxonomic classification: Fine-loamy, mixed, superactive Pachic Haplocryolls

Typical Pedon

Hackwood gravelly loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; about 2,200 feet north and 300 feet east of the southwest corner of section 6, T. 41 S., R. 38 E.; U.S. Geological Survey The V 7.5-minute topographic quadrangle; latitude and longitude not available; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 11 inches; brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; common very fine and fine and few medium tubular pores; 15 percent gravel and 5 percent cobbles; neutral (pH 6.8); clear wavy boundary.

A2—11 to 23 inches; brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; common very fine and fine tubular pores; 10 percent gravel; neutral (pH 6.6); clear wavy boundary.

AC1—23 to 42 inches; brown (10YR 5/3) gravelly loam, dark grayish brown (10YR 4/2) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; few very fine and fine tubular pores; 25 percent gravel; neutral (pH 6.8); clear wavy boundary.

AC2—42 to 48 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; few very fine and fine tubular pores; 25 percent gravel; neutral (pH 6.7); clear wavy boundary.

C—48 to 60 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few medium roots; few very fine tubular pores; 25 percent gravel; neutral (pH 7.0).

Range in Characteristics

Mollic epipedon thickness: 16 to 35 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—18 to 30 percent; rock fragment content—15 to 35 percent
Reaction: Neutral throughout

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry
Texture—gravelly loam
Clay content—15 to 27 percent
Rock fragment content—15 to 25 percent total, with 15 to 25 percent gravel and 0 to 5 percent cobbles
Organic matter content—3 to 8 percent

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry
Texture—loam or gravelly loam
Clay content—18 to 27 percent
Rock fragment content—5 to 25 percent
Organic matter content—2 to 4 percent

AC horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—gravelly loam or gravelly clay loam
Clay content—18 to 30 percent
Rock fragment content—15 to 35 percent
Organic matter content—0.5 to 1.0

C horizon
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Texture—gravelly loam, very gravelly loam, or very gravelly clay loam
Clay content—18 to 30 percent
Rock fragment content—20 to 45 percent

Hager Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as tuff or basalt
Slope range: 2 to 15 percent
Elevation: 4,440 to 4,780 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Xeric Argidurids

Typical Pedon

Hager cobbly loam in an area of rangeland; in the soil survey of Lake County, Oregon, Southern Part; about 1.75 miles west of the town of Plush; in the northwest corner of the northwest corner of section 31, T. 36 S., R. 24 E.; U.S. Geological Survey Plush 7.5-minute topographic quadrangle; latitude and longitude not available; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; grayish brown (10YR 5/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure parting to strong fine granular; soft, very friable, slightly sticky and nonplastic; many very fine roots; common very fine and fine tubular pores; 5 percent gravel and 25 percent cobbles; slightly alkaline (pH 7.4); abrupt smooth boundary.

A2—4 to 8 inches; light brownish gray (10YR 6/2) cobbly loam, dark brown (10YR 3/3) moist; moderate very fine prismatic structure parting to strong thin platy; hard, friable, slightly sticky and nonplastic; many very fine roots; common very fine vesicular pores; 5 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

Bt1—8 to 15 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate very fine prismatic structure; very hard, friable, moderately sticky and slightly plastic; common very fine roots; 5 percent gravel; many distinct clay films on faces of peds; slightly alkaline (pH 7.8); gradual wavy boundary.

Bt2—15 to 24 inches; very pale brown (10YR 7/4) silty clay loam, dark yellowish brown (10YR 3/4) moist; strong very fine angular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 5 percent gravel; many distinct clay films on faces of peds; moderately alkaline (pH 8.0); abrupt smooth boundary.

2Bkq—24 to 37 inches; very pale brown (10YR 7/3) loam, dark yellowish brown (10YR 4/4) moist; massive; very hard, firm and brittle, slightly sticky and slightly plastic; few very fine roots; common very fine and fine tubular pores; 5 percent fine gravel; slightly effervescent, lime segregated in few irregularly shaped seams and filaments; moderately alkaline (pH 8.4); abrupt smooth boundary.

2Bkqm—37 to 42 inches; very pale brown (10YR 7/3) cemented material, light yellowish brown (10YR 6/4) moist; indurated with silica and secondary carbonates; clear wavy boundary.

2R—42 inches; tuff.

Range in Characteristics

Depth to the duripan: 20 to 40 inches
Depth to bedrock: 40 to 60 inches
Depth to secondary carbonates: 10 to 30 inches
Particle-size control section: Clay content—25 to 35 percent; rock fragment content—5 to 25 percent

A1 horizon
Value—5 or 6 dry, 3 moist
Chroma—2 or 3 dry, 2 to 4 moist
Texture—cobbly loam or extremely stony loam
Clay content—20 to 25 percent
Rock fragment content—15 to 80 percent total, with 5 to 35 percent gravel, 10 to 30 percent cobbles, and 0 to 35 percent stones
Organic matter content—1 to 2 percent
Reaction—neutral or slightly alkaline

A2 horizon
Value—5 or 6 dry, 3 moist
Chroma—2 or 3 dry, 2 to 4 moist
Texture—cobbly loam, very cobbly loam, or extremely cobbly loam
Clay content—20 to 25 percent
Rock fragment content—15 to 70 percent total, with 0 to 20 percent gravel, 10 to 45 percent cobbles, and 0 to 15 percent stones

Organic matter content—0.2 to 0.4 percent
Reaction—neutral or slightly alkaline

Bt horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—3 to 6 dry, 3 or 4 moist
Texture—cobbly loam, clay loam, or silty clay loam
Clay content—25 to 35 percent
Rock fragment content—5 to 25 percent total, with 5 to 15 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Reaction—slightly alkaline or moderately alkaline

2Bkq horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—3 to 6 dry, 3 or 4 moist
Texture—loam, gravelly loam, or cobbly loam
Clay content—15 to 25 percent
Rock fragment content—5 to 35 percent total, with 5 to 30 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 to 2 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Other features—pararock fragments that consist of fractured, weakly cemented lacustrine deposits in some pedons

2Bkqm horizon
Value—7 or 8 dry, 6 or 7 moist
Chroma—3 dry, 4 or 6 moist

Hayespring Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Mixed volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 0 to 20 percent
Elevation: 4,400 to 5,360 feet
Mean annual precipitation: 9 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine-loamy, isotic, frigid Vitritorrandic Durixerolls

Typical Pedon

Hayespring very stony ashy fine sandy loam in an area of rangeland, in map unit 464, Moonbeam-Hayespring complex, 2 to 8 percent slopes; Lake County, Oregon; about 100 feet north and 50 feet east of the southwest corner of section 10, T. 23 S., R. 19 E.; U.S. Geological Survey Fredrick Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 35 minutes, 14 seconds north and longitude 120 degrees, 26 minutes, 5 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; dark grayish brown (10YR 4/2) very stony ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; strong medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and fine and few medium interstitial and tubular pores;

15 percent gravel, 10 percent cobbles, and 10 percent stones; neutral (pH 7.2); clear smooth boundary.

A2—3 to 10 inches; dark grayish brown (10YR 4/2) stony ashy fine sandy loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure parting to strong medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine, fine, and medium interstitial and tubular pores; 5 percent gravel, 10 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—10 to 17 inches; brown (10YR 5/3) cobbly ashy clay loam, dark brown (10YR 3/3) moist; strong coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine, common fine, and few medium and coarse roots; few very fine, fine, and medium tubular pores; 5 percent gravel, 10 percent cobbles, and 2 percent stones; common faint clay films on faces of peds; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—17 to 24 inches; light brown (7.5YR 6/3) ashy clay loam, brown (7.5YR 4/4) moist; weak medium prismatic structure parting to strong medium angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; few very fine and fine tubular pores; 2 percent gravel and 5 percent cobbles; common distinct clay films on faces of peds; lenses cemented with silica in lower part of horizon; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bqm1—24 to 36 inches; very pale brown (10YR 7/3) cemented material, brown (10YR 4/3) moist; moderate medium platy structure; very hard, very firm; moderately cemented with secondary silica; slightly alkaline (pH 7.6); clear wavy boundary.

Bqm2—36 to 44 inches; light gray (10YR 7/2) cemented material, grayish brown (10YR 5/2) moist; strong medium platy structure; very strongly cemented with secondary silica; slightly alkaline (pH 7.8); abrupt smooth boundary.

R—44 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 10 to 17 inches, includes the Bt1 horizon in some pedons
Depth to the duripan: 20 to 40 inches
Depth to bedrock: 30 to 60 inches
Particle-size control section: Clay content—27 to 35 percent; rock fragment content—5 to 20 percent
Reaction: Neutral or slightly alkaline
Sodium fluoride pH: 8.5 to 9.0

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry
Texture—very stony ashy fine sandy loam, stony ashy fine sandy loam, stony ashy very fine sandy loam, gravelly ashy very fine sandy loam, ashy sandy loam, very cobbly ashy sandy loam, cobbly ashy sandy loam, gravelly ashy loam, ashy fine sandy loam, stony ashy sandy loam, or ashy loamy fine sand
Clay content—2 to 20 percent
Rock fragment content—35 to 60 percent total, with 0 to 25 percent gravel, 0 to 30 percent cobbles, and 0 to 20 percent stones
Organic matter content—2 to 4 percent
Volcanic glass content—20 to 40 percent in coarse silt to fine sand fractions

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist

Texture—stony ashy fine sandy loam or ashy fine sandy loam
Clay content—11 to 18 percent
Rock fragment content—10 to 30 percent total, with 5 to 10 percent gravel, 0 to 10 percent cobbles, and 5 to 10 percent stones
Organic matter content—2 to 4 percent
Volcanic glass content—15 to 30 percent in coarse silt to fine sand fractions

Bt1 horizon
Hue—10YR or 7.5YR
Value—4 to 6 dry
Chroma—3 or 4 dry or moist
Texture—cobbly ashy clay loam, ashy clay loam, ashy sandy clay loam, or cobbly ashy sandy clay loam
Clay content—20 to 32 percent
Rock fragment content—5 to 25 percent total, with 0 to 10 percent gravel, 5 to 20 percent cobbles, and 0 to 5 percent stones
Volcanic glass content—15 to 30 percent in coarse silt to fine sand fractions

Bt2 horizon
Hue—10YR or 7.5YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—ashy clay loam
Clay content—30 to 36 percent
Rock fragment content—5 to 15 percent total, with 0 to 5 percent gravel and 5 to 10 percent cobbles
Volcanic glass content—15 to 30 percent in coarse silt to fine sand fractions

Bqm1 and Bqm2 horizons
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Cementation—moderately cemented to indurated; at least one subhorizon is very strongly cemented or indurated

Taxadjunct Features

The Hayespring soil in map unit 237 is a taxadjunct to the Hayespring series. This soil is classified as ashy-skeletal and glassy, and the series is classified as fine-loamy and isotic. This soil has a xeric soil temperature regime, and the series has a frigid soil temperature regime. The Hayespring series does not have a duripan.

Helphenstein Series

Depth class: Very deep to bedrock
Drainage class: Somewhat poorly drained
Landscape: Basins
Landform: Lakebeds
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Elevation: 4,150 to 4,500 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Sodic Aquicambids

Typical Pedon

Helphenstein silt loam in an area of rangeland, in map unit 363, Helphenstein-Pitcheranch-Reese complex, 0 to 2 percent slopes; Lake County, Oregon; about 3,300 feet south and 3,300 feet west of the northeast corner of section 25, T. 32 S., R. 21 E.; U.S. Geological Survey Sawed Horn 7.5-minute topographic quadrangle; latitude 42 degrees, 45 minutes, 56 seconds north and longitude 120 degrees, 11 minutes, 31 seconds west. (When the soil was described on November 1, 1995, a water table was at a depth of 48 inches. Colors are for dry soil unless otherwise stated.)

An—0 to 2 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; weak medium and thin platy structure parting to moderate very fine granular; soft, very friable, moderately sticky and nonplastic; few very fine roots; common very fine and fine tubular pores; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

Bn1—2 to 8 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; moderate very thin and thin platy structure; slightly hard, friable, moderately sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine tubular pores; violently effervescent; few faint iron redoximorphic concentrations; very strongly alkaline (pH 9.1); clear smooth boundary.

Bn2—8 to 24 inches; light gray (10YR 7/2) silty clay loam, brown (10YR 5/3) moist; moderate medium and thin platy structure; hard, friable, very sticky and moderately plastic; common very fine and few fine roots; common very fine and fine tubular pores; strongly effervescent; strongly alkaline (pH 9.0); gradual smooth boundary.

Bn3—24 to 34 inches; very pale brown (10YR 8/2) silty clay loam, brown (10YR 5/3) moist; moderate coarse subangular blocky structure; hard, friable, very sticky and moderately plastic; few very fine roots; common very fine and fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); gradual smooth boundary.

2C1—34 to 55 inches; light gray (5Y 7/2) loam, olive (5Y 4/3) moist; moderate coarse subangular blocky structure; hard, friable, slightly sticky and moderately plastic; very few very fine roots; common very fine and fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

2C2—55 to 60 inches; light gray (5Y 7/2) loam, olive (5Y 4/3) moist; moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; very few very fine roots; common very fine and fine tubular pores; very slightly effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: More than 60 inches

Depth to water table (apparent): 24 to 48 inches below the surface at some time during February through April

Ponding: Frequent and occasional; as high as 6 inches above the surface at some time during December through May

Particle-size control section: Clay content—20 to 30 percent

Other feature: Some pedons have 5 to 30 percent volcanic glass in the sand and silt fractions.

An horizon

Hue—10YR or 2.5Y

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 dry, 2 or 3 moist

Texture—silt loam, fine sandy loam, or very channery loam

Clay content—5 to 25 percent
Rock fragment content—0 to 60 percent channers
Organic matter content—0.5 to 1.5 percent
Reaction—very strongly alkaline to slightly alkaline
Calcium carbonate equivalent—1 to 12 percent
Salinity (electrical conductivity)—4 to 35 millimhos per centimeter
Sodicity (sodium adsorption ratio)—20 to 525

Bn1 horizon
Hue—10YR or 2.5Y
Value—6 to 8 dry, 3 to 5 moist
Chroma—2 dry, 2 or 3 moist
Texture—silt loam
Clay content—9 to 20 percent
Reaction—very strongly alkaline to slightly alkaline
Calcium carbonate equivalent—1 to 10 percent
Salinity (electrical conductivity)—4 to 50 millimhos per centimeter
Sodicity (sodium adsorption ratio)—20 to 525

Bn2 and Bn3 horizons
Hue—10YR or 2.5Y
Value—6 to 8 dry, 3 to 5 moist
Chroma—2 dry, 2 or 3 moist
Texture—silty clay loam, loam, clay loam, or silt loam
Clay content—20 to 30 percent
Reaction—very strongly alkaline to moderately alkaline
Calcium carbonate equivalent—5 to 20 percent
Salinity (electrical conductivity)—4 to 35 millimhos per centimeter
Sodicity (sodium adsorption ratio)—20 to 400

2C horizon
Hue—10YR, 2.5Y, or 5Y
Value—6 to 8 dry, 3 to 5 moist
Chroma—2 dry, 2 or 3 moist
Texture—loam, silt loam, or fine sandy loam
Clay content—10 to 20 percent
Reaction—strongly alkaline or moderately alkaline
Calcium carbonate equivalent—2 to 20 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—2 to 100

Taxadjunct Feature

The Helphenstein soils in map units 362 and 534 are a taxadjunct to the Helphenstein series. These soils are classified as ashy and glassy, and the series is classified as fine-loamy and mixed.

Henkle Series

Depth class: Shallow to bedrock
Drainage class: Somewhat excessively drained
Landscape: Hills and mountains
Landform: Hillslopes and mountain slopes
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 0 to 65 percent
Elevation: 4,390 to 5,890 feet

Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Lithic Vitrixerands

Typical Pedon

Henkle gravelly ashy fine sandy loam in an area of grazeable woodland; in map unit 365, Henkle-Ludi complex, 20 to 40 percent slopes; Lake County, Oregon; about 1 mile north of Squaw Mountain, about 300 feet north and 1,100 feet east of the southwest corner of section 27, T. 23 S., R. 16 E.; U.S. Geological Survey Fox Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 32 minutes, 38 seconds north and longitude 120 degrees, 47 minutes, 18 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

Oi—0 to 1 inch; slightly decomposed plant material.
A1—1 to 6 inches; very dark grayish brown (10YR 3/2) gravelly ashy fine sandy loam, black (10YR 2/1) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine, medium, and coarse roots; few very fine tubular pores; 20 percent gravel; neutral (pH 6.8); gradual smooth boundary.
A2—6 to 16 inches; dark brown (10YR 3/3) gravelly ashy loam, black (10YR 2/1) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; few very fine tubular pores; 20 percent gravel; neutral (pH 7.2); abrupt irregular boundary.
Bw—16 to 20 inches; brown (10YR 4/3) extremely bouldery ashy loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 10 percent gravel, 5 percent cobbles, 5 percent stones, and 40 percent boulders; slightly alkaline (pH 7.6); abrupt irregular boundary.
2R—20 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 12 inches
Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—5 to 20 percent (field estimated); rock fragment content—35 to 70 percent
Solum: 50 to 80 percent volcanic glass and glass-coated aggregates; 40 to 70 percent phosphate retention; 0.4 to 1.0 percent acid oxalate extractable aluminum plus one-half the acid oxalate extractable iron

A1 horizon
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—gravelly ashy fine sandy loam, extremely cobbly ashy loamy sand, ashy sandy loam, or gravelly ashy coarse sandy loam
Clay content—5 to 18 percent
Rock fragment content—0 to 80 percent total, with 0 to 35 percent gravel, 0 to 50 percent cobbles, and 0 to 10 percent stones
Organic matter content—2 to 4 percent
Reaction—neutral

A2 horizon
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist

Texture—gravelly ashy loam, gravelly ashy fine sandy loam, very cobbly ashy loam, or very cobbly ashy fine sandy loam
Clay content—5 to 20 percent
Rock fragment content—20 to 45 percent total, with 15 to 35 percent gravel, 0 to 25 percent cobbles, and 0 to 5 percent stones
Organic matter content—0.5 to 2.0 percent (less than 1 percent below a depth of 12 inches)
Reaction—neutral or slightly alkaline

Bw horizon
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—very bouldery ashy loam, extremely stony ashy loam, very bouldery ashy sandy loam, or extremely stony ashy sandy loam
Clay content—5 to 20 percent
Rock fragment content—40 to 75 percent total, with 10 to 20 percent gravel, 5 to 10 percent cobbles, 5 to 30 percent stones, and 15 to 45 percent boulders
Reaction—neutral or slightly alkaline

Hinton Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Lake terraces
Parent material: Eolian sand over lacustrine beach deposits derived from mixed volcanic rock
Slope range: 0 to 5 percent
Elevation: 4,390 to 4,400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, nonacid, mesic Duric Torriorthents

Typical Pedon

Hinton gravelly loamy sand in an area of rangeland; in the soil survey of Lake County, Oregon, Southern Part; about 4.5 miles northeast of Paisley in the southeast 1/4 southwest 1/4 northeast 1/4 of section 4, T. 33 S., R. 19 E.; latitude and longitude data not available. (Colors are for dry soil unless otherwise stated.)

A1—0 to 1 inch; dark grayish brown (10YR 4/2) gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; common very fine, fine, and medium and few coarse roots; many fine tubular pores; 10 percent fine gravel and 10 percent coarse gravel; 2 percent sand-sized pumiceous ash grains; moderately alkaline (pH 8.2); gradual smooth boundary.
A2—1 to 12 inches; grayish brown (10YR 5/2) loamy sand, dark brown (10YR 3/3) moist; moderate thick platy structure parting to moderate thin platy; slightly hard, friable, nonsticky and nonplastic; common very fine, fine, and medium and few coarse roots; many fine tubular pores; 5 percent fine gravel and 5 percent coarse gravel; moderately alkaline (pH 8.2); abrupt smooth boundary.
2Bkq—12 to 18 inches; pale brown (10YR 6/3) gravelly loam, dark brown (7.5YR 3/4) moist; massive; extremely hard, firm and brittle, slightly sticky and nonplastic; few very fine roots; many very fine interstitial pores; 10 percent fine gravel and

5 percent coarse gravel; slightly effervescent; carbonates segregated in few fine filaments; neutral (pH 7.0); abrupt smooth boundary.

3Ck—18 to 24 inches; gray (10YR 6/1) extremely gravelly sand, dark gray (10YR 4/1) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; carbonates segregated in few fine filaments; 50 percent fine gravel, 35 percent coarse gravel, and 2 percent cobbles; violently effervescent; neutral (pH 7.0); clear wavy boundary.

4Cq—24 to 28 inches; light brownish gray (10YR 6/2) sand, brown (10YR 5/3) moist; massive; hard, firm and brittle, slightly sticky and slightly plastic; few very fine roots; many very fine interstitial pores; 5 percent fine gravel and 5 percent coarse gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

5C1—28 to 32 inches; pale brown (10YR 6/3) extremely gravelly sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 55 percent fine gravel and 10 percent coarse gravel; slightly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

5C2—32 to 40 inches; light gray (10YR 7/2) extremely gravelly sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 30 percent fine gravel, 30 percent coarse gravel, and 2 percent cobbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

5C′q—40 to 43 inches; pale brown (10YR 6/3) gravelly sand, brown (10YR 4/3) moist; massive; hard, firm and brittle, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 15 percent fine gravel and 10 percent coarse gravel; slightly effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

5C′—43 to 60 inches; light gray (10YR 7/2) extremely gravelly sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 30 percent fine gravel, 30 percent coarse gravel, and 2 percent cobbles; violently effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to the firm, brittle layer: 10 to 20 inches
Depth to strongly contrasting sandy-skeletal material: 16 to 26 inches
Depth to secondary carbonates: 10 to 20 inches
Particle-size control section: Clay content—6 to 14 percent in the upper part and 2 to 10 percent in the contrasting lower part; rock fragment content—15 to 25 percent in the upper part and 35 to 75 percent in the contrasting lower part, mainly gravel

A1 horizon
Value—4 to 7 dry, 3 or 4 moist
Chroma—2 or 3 moist
Clay content—2 to 10 percent
Rock fragment content—15 to 25 percent gravel
Organic matter content—1 to 2 percent in the upper part and 0.5 to 1.0 percent in the lower part
Reaction—slightly alkaline or moderately alkaline

A2 horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 moist
Texture—sandy loam or loamy sand
Clay content—2 to 10 percent
Rock fragment content—5 to 15 percent gravel
Organic matter content—0.5 to 1.0 percent
Reaction—slightly alkaline or moderately alkaline

2Bkq horizon
Hue—10YR or 7.5YR
Value—5 to 7 dry, 3 to 5 moist
Chroma—1 to 3 dry, 1 to 4 moist
Clay content—7 to 15 percent
Rock fragment content—15 to 25 percent gravel
Reaction—neutral to moderately alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

C horizon
Hue—10YR or 7.5YR
Value—5 to 7 dry, 3 to 5 moist
Chroma—1 to 3 dry, 1 to 4 moist
Texture—very gravelly sand or extremely gravelly sand
Clay content—2 to 10 percent
Rock fragment content—35 to 75 percent total, with 35 to 70 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Other features—typically extremely gravelly sand or very gravelly sand with thin layers of sand or gravelly sand; consists of multiple strata of firm, brittle calcareous sand and gravel over layers of calcareous sand and gravel that are not brittle as a result of weak silica cementation

Horning Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins
Landform: Stable dunes on lake terraces
Parent material: Eolian deposits derived from volcanic ash and diatomite over lacustrine deposits derived from diatomite and volcanic rock such as tuff
Slope range: 0 to 20 percent
Elevation: 4,280 to 4,520 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, calcareous, frigid Vitrandic Torriorthents

Typical Pedon

Horning ashy loamy sand in an area of rangeland, in map unit 369, Horning-Tonor complex, 0 to 3 percent slopes; Lake County, Oregon, in the southeastern part of Fort Rock Valley; about 2,600 feet south and 1,700 feet west of the northeast corner of section 15, T. 27 S., R. 16 E.; U.S. Geological Survey Thorn Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 13 minutes, 43 seconds north and longitude 120 degrees, 48 minutes, 31 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; light brownish gray (10YR 6/2) ashy loamy sand, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; many very fine interstitial pores and few fine tubular pores;

30 percent very pale brown (10YR 8/2) diatomite sand grains 0.1 to 0.5 millimeters in size; moderately alkaline (pH 8.0); clear smooth boundary.

Bkn—4 to 26 inches; light brownish gray (10YR 6/2) ashy loamy fine sand, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common fine interstitial pores; 30 percent very pale brown (10YR 8/2) diatomite sand grains 0.1 to 0.5 millimeters in size; disseminated secondary carbonates in matrix; slightly effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

Bknb—26 to 40 inches; light brownish gray (10YR 6/2) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; 30 percent very pale brown (10YR 8/2) diatomite sand grains 0.1 to 0.5 millimeters in size; disseminated secondary carbonates in matrix; slightly effervescent; very strongly alkaline (pH 9.5); clear smooth boundary.

Bkb1—40 to 48 inches; light gray (10YR 7/2) ashy loamy fine sand, brown (10YR 5/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; many fine interstitial pores; 50 percent very pale brown (10YR 8/2) diatomite sand grains 0.1 to 0.5 millimeters in size; disseminated secondary carbonates in matrix; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bkb2—48 to 58 inches; light gray (10YR 7/2) ashy loamy sand, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few fine tubular pores; 10 percent very pale brown (10YR 8/2) diatomite sand grains 0.1 to 0.5 millimeters in size; disseminated secondary carbonates in matrix; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

2C1—58 to 70 inches; very pale brown (10YR 7/3) ashy fine sandy loam, brown (10YR 4/3) moist; massive; soft, friable, nonsticky and nonplastic; common very fine and fine roots; few fine tubular pores; violently effervescent; very strongly alkaline (pH 10.3); clear smooth boundary.

2C2—70 to 85 inches; very pale brown (10YR 7/3) ashy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; few fine tubular pores; violently effervescent; very strongly alkaline (pH 9.4).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to identifiable secondary carbonates: 3 to 10 inches
Depth to buried horizon: 25 to 40 inches
Particle-size control section: Clay content—4 to 10 percent by weighted average; volcanic glass content—30 to 70 percent in coarse silt to fine sand fractions
Other feature: Diatomite grains may make up as much as 50 percent of the sand fraction in some horizons.

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Clay content—2 to 10 percent
Rock fragment content—0 to 5 percent fine gravel
Organic matter content—0.2 to 0.5 percent
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—1 to 13

Bkn horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand, ashy loamy fine sand, or ashy sand
Clay content—2 to 10 percent
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 8 percent
Salinity (electrical conductivity)—4 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30
Effervescence—slightly effervescent or strongly effervescent
Other features—identifiable secondary carbonates occur as finely disseminated crystals in matrix or as coatings on coarse sand grains

Bknb horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy fine sandy loam or ashy sandy loam
Clay content—5 to 10 percent
Reaction—moderately alkaline to very strongly alkaline (pH as high as 9.6)
Calcium carbonate equivalent—1 to 8 percent
Salinity (electrical conductivity)—4 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—30 to 90
Effervescence—slightly effervescent or strongly effervescent
Other features—identifiable secondary carbonates occur as finely disseminated crystals in matrix or as coatings on coarse sand grains

Bkb horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy fine sand or ashy loamy sand
Clay content—5 to 10 percent
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 8 percent
Salinity (electrical conductivity)—2 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 30
Effervescence—slightly effervescent or strongly effervescent
Other features—identifiable secondary carbonates occur as finely disseminated crystals in matrix or as coatings on coarse sand grains

2C horizon
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy loam, ashy fine sandy loam, or ashy silt loam
Clay content—10 to 25 percent
Rock fragment content—0 to 5 percent fine gravel
Reaction—strongly alkaline or very strongly alkaline (pH as high as 10.5)
Calcium carbonate equivalent—5 to 15 percent
Salinity (electrical conductivity)—8 to 32 millimhos per centimeter
Sodicity (sodium adsorption ratio)—30 to 150

Icene Series

Depth class: Very deep to bedrock
Drainage class: Moderately well drained
Landscape: Basins
Landform: Lake terraces

Parent material: Lacustrine deposits derived from volcanic rock such as basalt or tuff
Slope range: 0 to 1 percent
Elevation: 4,270 to 4,550 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Aquisalids

Typical Pedon

Icene loam in an area of rangeland, in map unit 370, Icene-Playas complex, 0 to 1 percent slopes; Lake County, Oregon; about 1,100 feet north and 1,400 feet east of the southwest corner of section 29, T. 30 S., R. 23 E.; U.S. Geological Survey Alkali Lake 7.5-minute topographic quadrangle; latitude 42 degrees, 56 minutes, 6 seconds north and longitude 120 degrees, 1 minute, 27 seconds west. (Colors are for dry soil unless otherwise stated.)

Anz1—0 to 3 inches; pale yellow (2.5Y 8/2) loam, olive brown (2.5Y 4/3) moist; weak very thin platy structure parting to weak fine granular; soft, very friable, moderately sticky and moderately plastic; few fine roots; few fine vesicular pores; violently effervescent, disseminated carbonates; white powdery salt crust on surface; very strongly alkaline (pH 9.6); abrupt smooth boundary.

Anz2—3 to 7 inches; pale yellow (2.5Y 8/2) loam, olive brown (2.5Y 4/3) moist; moderate very thin and thin platy structure; slightly hard, very friable, very sticky and very plastic; few fine roots; few fine interstitial pores; violently effervescent, disseminated carbonates; very strongly alkaline (pH 9.6); abrupt smooth boundary.

Bnz1—7 to 30 inches; light gray (2.5Y 7/2) loam, light yellowish brown (2.5Y 6/3) moist; strong medium and thin platy structure parting to moderate fine subangular blocky; hard, firm, moderately sticky and moderately plastic; few fine roots; few fine interstitial pores; violently effervescent, disseminated carbonates; very strongly alkaline (pH 9.6); clear smooth boundary.

Bnz3—30 to 41 inches; light gray (2.5Y 7/2) loam, light yellowish brown (2.5Y 6/4) moist; strong medium platy structure; hard, friable, very sticky and very plastic; few fine roots; few fine interstitial pores; strongly effervescent, disseminated carbonates; very strongly alkaline (pH 9.6); abrupt smooth boundary.

C—41 to 60 inches; light gray (2.5Y 7/2) fine sandy loam, olive brown (2.5Y 4/3) moist; weak medium platy structure; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; few fine interstitial pores; slightly effervescent, disseminated carbonates; very strongly alkaline (pH 9.6).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—20 to 30 percent
Depth to water table: 24 to 60 inches below the soil surface at some time during November through May (apparent)

Anz horizon
Hue—10YR or 2.5Y
Value—5 to 8 dry, 3 or 4 moist
Chroma—2 to 4 moist
Texture—loam or fine sandy loam
Clay content—5 to 18 percent
Organic matter content—0.5 to 1.5 percent
Reaction—slightly alkaline to very strongly alkaline (pH as high as 10.0)
Calcium carbonate equivalent—0 to 3 percent

Salinity (electrical conductivity)—2 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 25

Bnz horizon
Hue—10YR or 2.5Y
Value—6 to 8 dry, 3 to 6 moist
Chroma—2 to 4 moist
Texture—silty clay loam, loam, clay loam, or silt loam
Clay content—20 to 30 percent
Reaction—moderately alkaline to very strongly alkaline (pH as high as 10.0)
Calcium carbonate equivalent—2 to 10 percent
Salinity (electrical conductivity)—30 to 50 millimhos per centimeter
Sodicity (sodium adsorption ratio)—90 to 120

C horizon
Hue—10YR, 2.5Y, or 5Y
Value—6 to 8 dry, 3 to 7 moist
Chroma—2 or 3 moist
Texture—loam, silt loam, or fine sandy loam
Clay content—10 to 20 percent
Reaction—moderately alkaline to very strongly alkaline (pH as high as 10.0)
Calcium carbonate equivalent—0 to 3 percent
Salinity (electrical conductivity)—16 to 32 millimhos per centimeter
Sodicity (sodium adsorption ratio)—20 to 70

Ipsoot Series

Depth class: Moderately deep to cinders
Drainage class: Excessively drained
Landscape: Mountains
Landform: Cinder cones
Parent material: Volcanic ash over cinders derived from volcanic rock such as basalt
Slope range: 15 to 65 percent
Elevation: 4,550 to 6,230 feet
Mean annual precipitation: 15 to 35 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 10 to 50 days

Taxonomic classification: Ashy over pumiceous or cindery, glassy Xeric Vitricryands

Typical Pedon

Ipsoot very paragravelly ashy loamy coarse sand, 30 to 65 percent slopes, in an area of woodland; in map unit 372, Lake County, Oregon; about 1,700 feet east and 400 feet north of the southwest corner of section 20, T. 23 S., R. 12 E.; U.S. Geological Survey Spring Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 33 minutes, 40 seconds north and longitude 121 degrees, 18 minutes, 18 seconds west; NAD 27. (Colors are for moist soil unless otherwise stated.)

Oi—0 to 1 inch; slightly decomposed plant material consisting of pine needles and litter.

A—1 to 5 inches; dark brown (10YR 3/3) very paragravelly ashy loamy coarse sand, yellowish brown (10YR 5/4) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine roots; many fine interstitial pores; 40 percent pumice paragravel; 50 percent sand-sized (0.5 to 2.0 millimeters) ash that is brown (10YR 5/3); neutral (pH 6.8); clear smooth boundary.

AC1—5 to 8 inches; brown (10YR 4/3) very paragravelly ashy loamy coarse sand, yellowish brown (10YR 5/4) dry; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common fine roots; many fine interstitial pores; 40 percent pumice paragravel; 50 percent sand-sized (0.5 to 2.0 millimeters) ash that is brown (10YR 5/3); neutral (pH 6.8); clear smooth boundary.

AC2—8 to 18 inches; brown (10YR 4/3) very paragravelly ashy loamy coarse sand, yellowish brown (10YR 5/4) dry; single grain; loose, nonsticky and nonplastic; few fine roots; many fine interstitial pores; 40 percent pumice paragravel; 70 percent sand-sized (0.5 to 2.0 millimeters) ash that is light gray (10YR 7/2); neutral (pH 6.8); clear wavy boundary.

C—18 to 31 inches; brown (10YR 5/3) ashy coarse sand, pale brown (10YR 6/3) dry; single grain; loose, nonsticky and nonplastic; few fine roots; many fine interstitial pores; 10 percent pumice paragravel; 70 percent sand-sized (0.5 to 2.0 millimeters) ash that is very pale brown (10YR 8/2); neutral (pH 7.0); abrupt smooth boundary.

2C—31 to 61 inches; dark yellowish brown (10YR 3/4) cinders, yellowish brown (10YR 5/4) dry; single grain; few fine roots; many medium vesicular pores; about 90 percent gravel-sized cinders and 10 percent cobble-sized cinders with less than 10 percent of voids filled; neutral (pH 7.2).

Range in Characteristics

Depth to bedrock: More than 60 inches

Depth to cinders: 20 to 40 inches

Thickness of andic soil properties: 20 or 40 inches

Particle-size control section: Clay content—upper part (ash mantle) has field-estimated clay content of 0 to 5 percent; pararock fragment content—upper part has 20 to 35 percent pumice paragravel fragments and lower part has 90 percent or more gravel and cobble-sized basaltic cinders

Reaction: Neutral throughout

Other features: The upper part (ash mantle) of the particle-size control section has 70 to 100 percent glass and glass-coated aggregates, phosphate retention of 25 to 50 percent, acid oxalate extractable aluminum plus one-half the acid oxalate iron of 0.4 to 0.9 percent, 15-bar water content of 4 to 7 percent in both dried and undried samples, and moist bulk density of 0.75 to 0.90 grams per cubic centimeter.

A horizon

Value—3 or 4 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Clay content—0 to 5 percent
Pararock fragment content—35 to 50 percent pumice paragravel
Organic matter content—0.2 to 0.5 percent
Other features—40 to 60 percent sand-sized (0.5 to 2.0 millimeters) pumiceous ash

AC horizon

Value—3 or 4 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Clay content—0 to 5 percent
Pararock fragment content—35 to 50 percent pumice paragravel
Organic matter content—0.1 to 0.4 percent
Other features—40 to 60 percent sand-sized (0.5 to 2.0 millimeters) pumiceous ash

C horizon

Value—4 to 8 moist, 6 to 8 dry
Chroma—1 to 4 moist or dry

Texture—ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand, or very paragravelly ashy loamy coarse sand
Clay content—0 to 5 percent
Pararock fragment content—5 to 45 percent pumice paragravel
Other features—60 to 90 percent sand-sized (0.5 to 2.0 millimeters) pumiceous ash

2C horizon
Hue—10YR or 7.5YR
Value—3 or 4 moist, 5 to 7 dry
Chroma—3 or 4 moist or dry
Rock fragment content—90 to 100 percent total, with 50 to 90 percent gravel-sized cinders and 10 to 50 percent cobble-sized cinders

Jacksplace Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and summit hillslopes
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 20 percent
Elevation: 4,320 to 5,930 feet
Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Vitritorrandic Argixerolls

Typical Pedon

Jacksplace cobbly ashy loamy sand in an area of rangeland, in map unit 670, Weglike-Jacksplace complex, 1 to 6 percent slopes; Lake County, Oregon; about 1.2 miles north of Jacksplace, 0.7 mile southwest of Coyote Hole Reservoir, and 50 feet west of Millican Road; about 2,560 feet east and 1,520 feet north of the southwest corner of section 15, T. 24 S., R. 17 E.; U.S. Geological Survey Jacks Place 7.5-minute topographical quadrangle; latitude 43 degrees, 29 minutes, 20 seconds north and longitude 120 degrees, 39 minutes, 52 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; brown (10YR 5/3) cobbly ashy loamy sand, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; many very fine, common fine, and few medium roots; common very fine and fine and few medium interstitial and tubular pores; 10 percent gravel, 5 percent cobbles, and 2 percent stones; neutral (pH 7.0); clear smooth boundary.
A2—4 to 9 inches; brown (10YR 5/3) cobbly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to strong medium granular; soft, very friable, slightly sticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine and few medium interstitial and tubular pores; 5 percent gravel, 10 percent cobbles, and 2 percent stones; neutral (pH 7.2); clear smooth boundary.
Bt1—9 to 12 inches; brown (10YR 5/3) very stony ashy sandy loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, common fine, and few medium roots; few very fine, fine, and medium tubular pores; 10 percent gravel, 15 percent cobbles, and 20 percent stones; very few faint clay films on faces of peds and bridging sand grains; neutral (pH 7.3); clear smooth boundary.

Bt2—12 to 20 inches; yellowish brown (10YR 5/4) extremely stony ashy sandy clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; 20 percent gravel, 20 percent cobbles, and 25 percent stones; common faint clay films on faces of peds and bridging sand grains; slightly alkaline (pH 7.4); clear smooth boundary.

C—20 to 26 inches; yellowish brown (10YR 5/4) extremely stony ashy sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine interstitial and tubular pores; 5 percent gravel, 20 percent cobbles, and 35 percent stones; slightly alkaline (pH 7.5); abrupt wavy boundary.

R—26 inches; basalt; thin (2 millimeters) discontinuous opal coatings on surface of bedrock.

Range in Characteristics

Mollic epipedon thickness: 9 to 12 inches, includes the Bt1 horizon in some pedons
Depth to bedrock: 24 to 32 inches
Particle-size control section: Clay content—18 to 27 percent; rock fragment content—35 to 60 percent, mainly stones and cobbles
Volcanic glass content: 30 to 60 percent in coarse silt to fine sand fractions

A1 horizon
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam, ashy fine sandy loam, ashy loamy sand, ashy loamy fine sand, gravelly ashy very fine sandy loam, cobbly ashy very fine sandy loam, cobbly ashy loamy sand, stony ashy sandy loam, or stony ashy loamy fine sand
Clay content—8 to 15 percent
Rock fragment content—0 to 30 percent total, with 0 to 25 percent gravel, 0 to 15 percent cobbles, and 0 to 30 percent stones
Organic matter content—1 to 2 percent
Reaction—neutral

A2 horizon
Chroma—2 or 3 dry or moist
Texture—cobbly ashy sandy loam or cobbly ashy loamy sand
Clay content—8 to 12 percent
Rock fragment content—15 to 35 percent total, with 5 to 15 percent gravel, 10 to 20 percent cobbles, and 0 to 3 percent stones
Organic matter content—1 to 2 percent
Reaction—neutral

Bt1 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very stony ashy sandy loam, extremely stony ashy sandy loam, or very cobbly ashy sandy loam
Clay content—16 to 19 percent
Rock fragment content—35 to 65 percent total, with 10 to 30 percent gravel, 10 to 30 percent cobbles, and 10 to 30 percent stones
Reaction—neutral or slightly alkaline

Bt2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist

Texture—very stony ashy sandy loam, very stony ashy sandy clay loam, or extremely stony ashy sandy clay loam
Clay content—18 to 28 percent
Rock fragment content—35 to 65 percent total, with 10 to 25 percent gravel, 10 to 20 percent cobbles, and 15 to 35 percent stones
Reaction—neutral or slightly alkaline

C horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very stony ashy sandy loam or extremely stony ashy sandy loam
Clay content—16 to 19 percent
Rock fragment content—35 to 65 percent total, with 5 to 20 percent gravel, 10 to 20 percent cobbles, and 20 to 40 percent stones
Reaction—slightly alkaline

Kewake Series

Depth class: Very deep to bedrock
Drainage class: Excessively drained
Landscape: Basins
Landform: Dunes
Parent material: Volcanic ash and eolian deposits derived from mixed volcanic rock
Slope range: 1 to 45 percent
Elevation: 4,220 to 5,130 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Mixed, mesic Vitrandic Torripsamments

Typical Pedon

Kewake ashy fine sand in an area of rangeland, in map unit 383, Kewake-Helphenstein, dry, complex, 0 to 25 percent slopes; Lake County, Oregon; about 2,400 feet north and 2,000 feet east of the southwest corner of section 31, T. 30 S., R. 18 E.; U.S. Geological Survey Ana River 7.5-minute topographic quadrangle; latitude 42 degrees, 55 minutes, 30 seconds north and longitude 120 degrees, 38 minutes, 4 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; light brownish gray (10YR 6/2) ashy fine sand, dark grayish brown (10YR 4/2) dry; moderate medium platy structure parting to weak fine granular; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.
C1—4 to 18 inches; light brownish gray (10YR 6/2) ashy loamy fine sand, brown (10YR 4/3) dry; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.
C2—18 to 25 inches; light brownish gray (10YR 6/2) ashy loamy fine sand, brown (10YR 4/3) dry; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.
C3—25 to 47 inches; light brownish gray (10YR 6/2) ashy loamy fine sand, brown (10YR 4/3) dry; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; strongly effervescent; very strongly alkaline (pH 9.6); gradual wavy boundary.

C4—47 to 60 inches; light brownish gray (10YR 6/2) ashy loamy fine sand, brown (10YR 4/3) dry; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; slightly effervescent; very strongly alkaline (pH 9.2).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—2 to 5 percent
Other features: The solum has 5 to 30 percent sand-sized pumiceous ash grains, is calcareous throughout, and is strongly effervescent or violently effervescent.

A horizon
Value—5 to 8 dry, 4 to 6 moist
Chroma—2 to 4 dry or moist
Texture—ashy fine sand, ashy loamy fine sand, ashy loamy sand, or ashy sand
Clay content—2 to 10 percent
Organic matter content—0.1 to 0.5 percent
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—2 to 6 percent
Salinity (electrical conductivity)—4 to 12 millimhos per centimeter
Sodicity (sodium adsorption ratio)—2 to 12

C1 and C2 horizons
Value—5 to 8 dry, 4 to 6 moist
Chroma—2 to 4 dry or moist
Texture—ashy loamy fine sand or ashy fine sand
Clay content—2 to 5 percent
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—3 to 8 percent
Salinity (electrical conductivity)—4 to 12 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 12

C3 and C4 horizons
Value—5 to 8 dry, 4 to 6 moist
Chroma—2 to 4 dry or moist
Texture—ashy loamy fine sand or ashy fine sand
Clay content—2 to 7 percent
Reaction—strongly alkaline or very strongly alkaline (pH as high as 10.0)
Calcium carbonate equivalent—3 to 8 percent
Salinity (electrical conductivity)—6 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—8 to 12

Krackle Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Mountains
Landform: Mountain slopes
Parent material: Colluvium derived from volcanic rock such as basalt
Slope range: 20 to 40 percent
Elevation: 5,700 to 5,990 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 30 to 60 days

Taxonomic classification: Loamy-skeletal, mixed, superactive Xeric Haplocryolls

Typical Pedon

Krackle cobbly clay loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; about 0.5 mile west of Big Trout Creek and 1.2 miles northeast of Catlow Peak in the northeast corner of the northwest corner of section 6, T. 41 S., R. 38 E.; U.S. Geological Survey The V topographic quadrangle; latitude and longitude not available. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; grayish brown (10YR 5/2) cobbly clay loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; 15 percent gravel, 10 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear wavy boundary.

Bw—4 to 15 inches; brown (10YR 5/3) very stony clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, firm, moderately sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; 10 percent gravel, 15 percent cobbles, and 20 percent stones; neutral (pH 7.0); gradual wavy boundary.

C—15 to 30 inches; yellowish brown (10YR 5/4) very stony clay loam, dark yellowish brown (10YR 3/4) moist; massive; slightly hard, firm, moderately sticky and slightly plastic; common fine roots; many very fine irregular pores; 10 percent gravel, 20 percent cobbles, and 20 percent stones; neutral (pH 7.0); abrupt irregular boundary.

2R—30 inches; fractured basalt.

Range in Characteristics

Mollic epipedon thickness: 10 to 16 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—25 to 35 percent; rock fragment content—35 to 50 percent
Reaction: Neutral throughout

A horizon
Value—4 or 5 dry, 2 or 3 moist
Texture—gravelly sandy loam
Clay content—10 to 25 percent
Rock fragment content—15 to 35 percent total, with 10 to 25 percent gravel, 3 to 10 percent cobbles, and 0 to 3 percent stones
Organic matter content—1 to 3 percent

Bw horizon
Value—4 or 5 dry, 2 or 3 moist
Texture—very cobbly loam, very cobbly clay loam, or very stony clay loam
Clay content—25 to 35 percent
Rock fragment content—35 to 50 percent total, with 5 to 15 percent gravel, 15 to 30 percent cobbles, and 10 to 25 percent stones

C horizon
Value—4 or 5 dry, 3 or 4 moist
Texture—very cobbly loam or very stony clay loam
Clay content—25 to 35 percent
Rock fragment content—35 to 50 percent total, with 5 to 15 percent gravel, 10 to 25 percent cobbles, and 15 to 30 percent stones

Note

The modal pedon is taken from the soil survey of Harney County Area, Oregon. This pedon has a surface texture that is not representative of the range in characteristics of the Krackle soils in this survey area.

Kunceider Series

Depth class: Shallow to bedrock
Drainage class: Somewhat excessively drained
Landform: Lava plateaus
Landform: Lava plains and lava plateaus
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Elevation: 4,320 to 5,260 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Lithic Haploxerolls

Typical Pedon

Kunceider cobbly ashy loamy sand in an area of rangeland, in map unit 666, Wegert-Kunceider complex, 0 to 3 percent slopes; Lake County, Oregon; about 2,190 feet north and 670 feet west of the southeast corner of section 6, T. 25 S., R. 15 E.; U.S. Geological Survey Cougar Mountain 7.5-minute topographic quadrangle; latitude 43 degrees, 26 minutes, 3.89 seconds north and longitude 120 degrees, 57 minutes, 23.39 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 5 inches; dark grayish brown (10YR 4/2) cobbly ashy loamy sand, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine, few medium, and common fine interstitial pores; 50 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized pumiceous ash grains; 15 percent fine gravel and 15 percent cobbles; neutral (pH 7.0); clear smooth boundary.
A2—5 to 9 inches; grayish brown (10YR 5/2) very cobbly ashy loamy sand, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; few medium and common fine tubular pores; 40 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized pumiceous ash grains; 10 percent fine gravel and 40 percent cobbles; neutral (pH 7.2); clear smooth boundary.
2Bw—9 to 14 inches; pale brown (10YR 6/3) extremely gravelly ashy sandy loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine, fine, and medium roots; few fine and medium tubular pores; 30 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized pumiceous ash grains; 40 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.4); abrupt smooth boundary.
2R—14 inches; fractured basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 12 inches
Depth to bedrock: 10 to 20 inches

Particle-size control section: Clay content—5 to 15 percent; rock fragment content—35 to 60 percent
Other features: Volcanic glass content—30 to 60 percent in coarse silt to very coarse sand fractions; medium to very coarse, sand-sized pumiceous ash content—30 to 50 percent by volume

A1 horizon
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—cobbly ashy loamy sand, ashy loamy sand, very stony sandy loam, or ashy sandy loam
Clay content—5 to 15 percent
Rock fragment content—0 to 60 percent total, with 0 to 35 percent gravel, 0 to 25 percent cobbles, and 0 to 20 percent stones
Organic matter content—2 to 3 percent
Reaction—neutral

A2 horizon
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly ashy loamy sand
Clay content—5 to 10 percent
Rock fragment content—35 to 60 percent total, with 0 to 20 percent gravel and 15 to 45 percent cobbles
Organic matter content—1 to 2 percent
Reaction—neutral

2Bw horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly ashy sandy loam, extremely gravelly ashy sandy loam, very cobbly ashy loamy sand, or extremely gravelly ashy loamy sand
Clay content—5 to 15 percent
Rock fragment content—35 to 70 percent total, with 10 to 50 percent gravel and 20 to 40 percent cobbles
Reaction—neutral or slightly alkaline

Laidlaw Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Depressions and maar volcanoes on lava plateaus
Parent material: Volcanic ash and alluvium derived from mixed volcanic rock
Slope range: 0 to 40 percent
Elevation: 4,370 to 5,270 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Humic Vitrixerands

Typical Pedon

Laidlaw ashy loamy sand in an area of rangeland, in map unit 395, Laidlaw-Wanoga complex, dry, 0 to 3 percent slopes; Lake County, Oregon; about 650 feet east and 700 feet north of the southwest corner of section 17, T. 24 S., R. 14 E., U.S. Geological

Survey Cabin Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 29 minutes, 18 seconds north and longitude 121 degrees, 4 minutes, 13 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

Oi—0 to 1 inch; slightly decomposed layer of plant material consisting of needles and twigs.

A1—1 to 5 inches; grayish brown (10YR 5/2) ashy loamy sand, very dark brown (10YR 2/2) moist; single grain; loose, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine irregular pores; 5 percent gravel; pumiceous sand grains that are light brownish gray (10YR 6/2) dry; neutral (pH 6.8); clear smooth boundary.

A2—5 to 13 inches; grayish brown (10YR 5/2) ashy loamy sand, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine tubular pores; pumiceous sand grains that are light brownish gray (10YR 6/2); neutral (pH 7.0); clear smooth boundary.

AB—13 to 31 inches; brown (10YR 5/3) ashy loamy coarse sand, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common fine, medium, and coarse roots; common fine and medium tubular pores; pumiceous sand grains that are light brownish gray (10YR 6/2); neutral (pH 7.2); clear smooth boundary.

2Bw1—31 to 37 inches; brown (10YR 5/3) cobbly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse subangular blocky structure; hard, firm, nonsticky and nonplastic; few fine and medium roots; few fine and medium tubular pores; 5 percent gravel and 15 percent cobbles; pumiceous sand grains that are light brownish gray (10YR 6/2); neutral (pH 7.2); clear smooth boundary.

2Bw2—37 to 50 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, firm, nonsticky and nonplastic; few fine and medium roots; few fine and medium tubular pores; pumiceous sand grains that are light brownish gray (10YR 6/2); neutral (pH 7.2); clear smooth boundary.

2C—50 to 60 inches; grayish brown (10YR 5/2) ashy loamy fine sand, very dark brown (10YR 2/2) moist; massive, hard, firm, nonsticky and nonplastic; few fine and medium roots; few fine and medium tubular pores; pumiceous sand grains that are light brownish gray (10YR 6/2); slightly alkaline (pH 7.4).

Range in Characteristics

Mollic epipedon thickness: 10 to 30 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—5 to 15 percent; rock fragment content—0 to 15 percent

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 to 4 dry, 2 or 3 moist
Texture—ashy loamy sand or gravelly ashy loamy sand
Clay content—5 to 10 percent
Rock fragment content—0 to 30 percent gravel
Organic matter content—1 to 4 percent
Reaction—neutral

A2 and AC horizons
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 to 4 dry, 2 or 3 moist

Texture—ashy loamy sand, gravelly ashy loamy sand, or ashy loamy coarse sand
Clay content—2 to 10 percent
Rock fragment content—0 to 20 percent gravel
Organic matter content—1 to 2 percent
Reaction—neutral

2Bw horizon
Value—4 or 5 dry, 3 moist
Chroma—3 dry, 2 or 3 moist
Texture—ashy fine sandy loam, gravelly ashy fine sandy loam, cobbly ashy sandy loam, or ashy sandy loam
Clay content—5 to 15 percent
Rock fragment content—0 to 30 percent total, with 0 to 20 percent gravel and 0 to 25 percent cobbles
Other features—mollic colors present; organic matter content less than 1 percent
Reaction—neutral

2C horizon
Value—5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy fine sandy loam, ashy loamy fine sand, gravelly ashy loamy sand, or cobbly ashy loamy sand
Clay content—2 to 10 percent
Rock fragment content—0 to 35 percent total, with 0 to 20 percent gravel and 0 to 25 percent cobbles
Reaction—neutral or slightly alkaline

Characteristics Outside Range of Series

The mollic epipedon ranges to a depth of 30 inches. A loamy coarse sand AB horizon is above the cambic horizon. The mollic epipedon includes the AB horizon.

Lambring Series

Depth class: Deep to bedrock
Drainage class: Well drained
Landscape: Mountains and hills
Landform: Mountain slopes and hillslopes
Parent material: Colluvium derived from volcanic rock such as basalt, andesite, or tuff
Slope range: 20 to 65 percent
Elevation: 4,440 to 6,830 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Pachic Haploxerolls

Typical Pedon

Lambring very cobbly sandy loam in an area of rangeland, in map unit 247, Chen-Erakatak-Lambring complex, 15 to 50 percent slopes; Lake County, Oregon; about 900 feet north and 3,400 feet west of the southeast corner of section 15, T. 35 S., R. 23 E.; U.S. Geological Survey Rabbit Hills SW 7.5-minute topographic quadrangle; latitude 42 degrees, 31 minutes, 46 seconds north and longitude 119 degrees, 59 minutes, seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 5 inches; brown (10YR 5/3) very cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine and medium interstitial pores; 20 percent gravel, 20 percent cobbles, and 15 percent stones; neutral (pH 7.0); clear smooth boundary.

A2—5 to 20 inches; grayish brown (10YR 5/2) very cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine and medium interstitial pores; 30 percent gravel, 20 percent cobbles, and 5 percent stones; neutral (pH 7.2); gradual wavy boundary.

C1—20 to 34 inches; pale brown (10YR 6/3) extremely cobbly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine, many fine, common medium, and few coarse roots; common fine and medium tubular pores; 30 percent gravel, 25 percent cobbles, and 10 percent stones; neutral (pH 7.2); gradual wavy boundary.

C2—34 to 50 inches; light yellowish brown (10YR 6/4) extremely cobbly loamy sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, very friable, nonsticky and nonplastic; few very fine, common fine, and few medium roots; common fine and medium tubular pores; 30 percent gravel, 30 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); abrupt wavy boundary.

2R—50 inches; tuff.

Range in Characteristics

Mollic epipedon thickness: 20 to 40 inches

Depth to bedrock: 40 to 60 inches

Particle-size control section: Clay content—12 to 15 percent by weighted average; rock fragment content—35 to 70 percent by weighted average

Reaction: Neutral or slightly alkaline

A1 horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—very cobbly sandy loam, very gravelly loam, very stony loam, or very cobbly loam

Clay content—8 to 26 percent

Rock fragment content—35 to 60 percent total, with 10 to 50 percent gravel, 0 to 25 percent cobbles, and 0 to 30 percent stones

Organic matter content—2 to 3 percent

A2 horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—very cobbly sandy loam

Clay content—10 to 18 percent

Rock fragment content—35 to 60 percent total, with 10 to 35 percent gravel, 20 to 40 percent cobbles, and 0 to 10 percent stones

Organic matter content—2 to 3 percent

C horizon

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly loam, very cobbly loam, extremely cobbly sandy loam, or extremely cobbly loamy sand

Clay content—5 to 15 percent
Rock fragment content—35 to 75 percent total, with 20 to 50 percent gravel, 15 to 40 percent cobbles, and 0 to 10 percent stones

Lapham Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins
Landform: Lake terraces
Parent material: Volcanic ash over lacustrine deposits derived from mixed volcanic rock such as basalt or tuff breccia
Slope range: 0 to 10 percent
Elevation: 4,300 to 4,770 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy over loamy-skeletal, glassy over isotic, frigid Vitritorrandic Haploxerolls

Typical Pedon

Lapham gravelly ashy loamy sand, 0 to 8 percent slopes, in an area of rangeland; in map unit 397, Lake County, Oregon; about 6 miles south of the community of Fort Rock, near a gravel pit west of the county road; about 925 feet west and 910 feet north of the southeast corner of section 33, T. 26 S., R. 14 E.; U.S. Geological Survey Fort Rock 7.5-minute topographic quadrangle; latitude 43 degrees, 16 minutes, 1 second north and longitude 121 degrees, 3 minutes, 24 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; grayish brown (10YR 5/2) gravelly ashy loamy sand, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine and common medium roots; many very fine interstitial pores and few fine tubular pores; 30 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized pumiceous ash grains; 15 percent gravel; slightly acid (pH 6.1); clear wavy boundary.

A2—2 to 16 inches; grayish brown (10YR 5/2) gravelly ashy sandy loam, very dark brown (10YR 2/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common very fine and fine tubular pores; 20 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized pumiceous ash grains; 15 percent gravel; neutral (pH 6.6); gradual wavy boundary.

2Bw—16 to 20 inches; brown (10YR 5/3) extremely gravelly ashy loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few very fine and fine roots; common very fine and fine tubular pores; 15 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized pumiceous ash grains; 50 percent gravel and 10 percent cobbles; neutral (pH 6.8); gradual wavy boundary.

2C—20 to 60 inches; pale brown (10YR 6/3) extremely gravelly ashy sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; common very fine and fine tubular pores; 65 percent gravel and 15 percent cobbles; neutral (pH 7.2).

Range in Characteristics

Mollic epipedon thickness: 12 to 22 inches
Depth to bedrock: More than 60 inches

Depth to the 2Bw horizon (strongly contrasting material): 16 to 26 inches
Particle-size control section: Clay content—5 to 15 percent in the upper part and 6 to 16 percent in the lower part, by weighted average; rock fragment content—15 to 35 percent in the upper part and 60 to 85 percent in the lower part, mainly gravel
Reaction: Slightly acid or neutral
Other feature: The soil contains a relatively high percentage of dark-colored minerals or rock fragments, especially in the lower part.

A1 horizon
Value—2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—gravelly ashy loamy sand, gravelly ashy sandy loam, or very gravelly ashy sandy loam
Clay content—5 to 15 percent
Rock fragment content—15 to 60 percent gravel
Organic matter content—2 to 3 percent
Other feature—15 to 30 percent, by volume, visible grains of medium to very coarse, sand-sized pumiceous ash

A2 horizon
Value—2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—gravelly ashy sandy loam or gravelly ashy loamy sand
Clay content—5 to 15 percent
Rock fragment content—15 to 35 percent gravel
Organic matter content—1 to 2 percent
Other feature—15 to 30 percent, by volume, visible grains of medium to very coarse, sand-sized pumiceous ash

2Bw horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—extremely gravelly ashy loam
Clay content—10 to 20 percent
Rock fragment content—60 to 85 percent total, with 50 to 70 percent gravel and 0 to 15 percent cobbles
Other feature—10 to 20 percent, by volume, visible grains of medium to very coarse, sand-sized pumiceous ash

2C horizon
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—extremely gravelly ashy loam
Clay content—5 to 15 percent
Rock fragment content—60 to 85 percent total, with 45 to 70 percent gravel and 5 to 20 percent cobbles
Other feature—0 to 20 percent, by volume, visible grains of medium to very coarse, sand-sized pumiceous ash, decreasing as depth increases

Lapine Series

Depth class: Very deep to bedrock
Drainage class: Excessively drained
Landscape: Lava plateaus
Landform: Pumice-mantled lava plateaus and cinder cones

Parent material: Eolian deposits of dacitic pumiceous ash and pumice fragments over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 30 percent
Elevation: 4,540 to 4,870 feet
Mean annual precipitation: 16 to 20 inches
Mean annual air temperature: 40 to 43 degrees F
Frost-free period: 10 to 50 days

Taxonomic classification: Ashy-pumiceous, glassy Xeric Vitricryands

Typical Pedon

Lapine paragravelly ashy loamy coarse sand, low landscape position, 0 to 3 percent slopes, in an area of woodland; in map unit 400, Lake County, Oregon; about 400 feet west and 1,650 feet north of the southeast corner of section 29, T. 24 S., R. 11 E.; U.S. Geological Survey Grass Well 7.5-minute topographic quadrangle; latitude 43 degrees, 27 minutes, 46 seconds north and longitude 121 degrees, 24 minutes, 45 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; brown (10YR 4/3) paragravelly ashy loamy coarse sand, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many fine interstitial pores; 15 percent paragravel pumice fragments; neutral (pH 7.0); gradual smooth boundary.

Bw—4 to 12 inches; brown (10YR 4/3) paragravelly ashy loamy coarse sand, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and medium roots; many fine interstitial pores; 15 percent paragravel pumice fragments; neutral (pH 7.0); abrupt smooth boundary.

C1—12 to 29 inches; very pale brown (10YR 8/2) extremely paragravelly ashy coarse sand, very pale brown (10YR 8/2) moist; single grain; loose, nonsticky and nonplastic; few medium roots; many fine interstitial pores; 60 percent paragravel pumice fragments; slightly alkaline (pH 7.4); clear smooth boundary.

C2—29 to 40 inches; light gray (10YR 7/2) paragravelly ashy coarse sand, light gray (10YR 7/2) moist; single grain; loose, nonsticky and nonplastic; few medium roots; many fine interstitial pores; 30 percent paragravel pumice fragments; slightly alkaline (pH 7.6); gradual wavy boundary.

C3—40 to 48 inches; very pale brown (10YR 8/2) and very dark brown (10YR 2/2) ashy coarse sand, light gray (10YR 7/2) and very dark brown (10YR 2/2) moist; single grain; loose, nonsticky and nonplastic; few medium roots; many very fine interstitial pores; 10 percent paragravel pumice fragments; slightly alkaline (pH 7.6); abrupt wavy boundary.

C4—48 to 53 inches; very pale brown (10YR 8/2) and very dark brown (10YR 2/2) ashy coarse sand, light gray (10YR 7/2) and very dark brown (10YR 2/2) moist; single grain; loose, nonsticky and nonplastic; few medium roots; many very fine interstitial pores; 10 percent paragravel pumice fragments; common coarse distinct reddish brown (5YR 4/4) relict redoximorphic iron concentrations; slightly alkaline (pH 7.6); abrupt smooth boundary.

C5—53 to 56 inches; yellowish brown (10YR 5/4) ashy sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; few medium roots; many fine interstitial pores; 5 percent pumice gravel; common coarse prominent strong brown (7.5YR 5/6) relict redoximorphic iron concentrations; 1-inch-thick reddish brown (5YR 4/4) weak discontinuous iron cementation; slightly alkaline (pH 7.8); abrupt smooth boundary.

2Bqb—56 to 60 inches; light gray (10YR 7/2) silty clay loam, light brownish gray (10YR 6/2) moist; massive; hard, firm and brittle, slightly sticky and slightly plastic; few medium roots; many very fine tubular pores; common fine distinct brown (7.5YR 4/4) relict redoximorphic iron concentrations; few fine distinct black (10YR 2/1) manganese concentrations; neutral (pH 7.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—1 to 5 percent; paragravel pumice fragment content—averages 35 to 75 percent fragments that are 2 millimeters to 4 centimeters in diameter
Other features: The depth to the loamy buried soil material is 40 to 60 inches or more. The ochric epipedon color is strongly contrasting within the fine-earth fraction. The soil material less than 0.5 millimeter in size has mollic color, and the material 0.5 millimeter in size or larger has high value and chroma. Some pedons have an O horizon that is 3 inches thick.

A horizon
Value—4 to 6 dry, 2 to 4 moist
Chroma—1 to 3 dry or moist
Clay content—1 to 5 percent
Texture—paragravelly ashy loamy coarse sand
Pararock fragment content—15 to 35 percent pumice paragravel
Organic matter content—0.1 to 0.3 percent
Reaction—moderately acid to neutral

Bw horizon
Hue—7.5YR to 5Y
Value—6 to 8 dry, 4 to 8 moist
Chroma—0 to 6 dry, 0 to 8 moist
Texture—paragravelly ashy loamy coarse sand, very paragravelly ashy coarse sand, or extremely paragravelly ashy coarse sand
Clay content—1 to 5 percent
Pararock fragment content—15 to 85 percent pumice paragravel
Reaction—moderately acid to neutral
Other feature—color due mainly to uncoated mineral grains

C horizon
Hue—10YR to 5Y
Value—6 to 8 dry, 4 to 8 moist
Chroma—0 to 4 dry or moist
Texture—ashy coarse sand, ashy sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand, or extremely paragravelly ashy coarse sand
Clay content—1 to 3 percent
Pararock fragment content—5 to 85 percent pumice paragravel
Reaction—slightly acid to slightly alkaline

2Bqb horizon
Hue—5YR to 10YR
Value—5 to 7 dry, 3 to 6 moist
Chroma—2 to 4 dry or moist
Texture—fine sandy loam, sandy loam, loam, or silty clay loam
Clay content—15 to 35 percent
Reaction—slightly acid to slightly alkaline
Other feature—relict redoximorphic features in some pedons

Lastcall Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Elevation: 4,400 to 5,100 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Argixerolls

Typical Pedon

Lastcall ashy sandy loam, 1 to 8 percent slopes, in an area of rangeland, in map unit 401, Lake County, Oregon; about 3 miles south-southeast of Saddle Butte and west of the North Fork of Peters Creek; 1,425 feet north and 50 feet west of the southeast corner of section 35, T. 23 S., R. 18 E.; U.S. Geological Survey Last Chance Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 31 minutes, 57 seconds north and longitude 120 degrees, 30 minutes, 54 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to weak very fine granular; slightly hard, very friable, nonsticky and nonplastic; few very fine and common fine roots; common very fine dendritic tubular pores; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

A2—2 to 7 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure parting to weak very fine granular; slightly hard, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine dendritic tubular pores; 5 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

BA—7 to 13 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; common very fine dendritic tubular pores; 5 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Btq—13 to 21 inches; pale brown (10YR 6/3) cobbly ashy sandy clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; moderately hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine dendritic tubular pores; 20 percent very weakly cemented durinodes; common faint clay films on faces of peds and lining pores; 5 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

Bt—21 to 31 inches; pale brown (10YR 6/3) cobbly ashy sandy clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium and fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine dendritic tubular pores; common distinct clay films on faces of peds and lining pores; 10 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

R—31 inches; fractured basalt; thin (less than 2 millimeters) silica coatings lining fractures.

Range in Characteristics

Mollic epipedon thickness: 7 to 15 inches
Depth to bedrock: 26 to 34 inches
Depth to durinodes (where present): 7 to 15 inches
Particle-size control section: Clay content—20 to 35 percent; rock fragment content—10 to 20 percent
Volcanic glass content: 35 to 75 percent in very fine sand and fine sand fractions
Reaction: Slightly alkaline

A1 horizon
Value—5 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam, ashy fine sandy loam, ashy loamy fine sand, or stony ashy sandy loam
Clay content—5 to 15 percent
Rock fragment content—5 to 35 percent
Organic matter content—1 to 3 percent

A2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam or ashy loamy sand
Clay content—5 to 15 percent
Rock fragment content—5 to 10 gravel
Organic matter content—1 to 2 percent

BA horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam or ashy loamy sand
Clay content—5 to 15 percent
Rock fragment content—5 to 10 percent gravel

Btq horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—cobbly ashy sandy clay loam or ashy sandy clay loam
Clay content—20 to 28 percent
Rock fragment content—10 to 20 percent total, with 5 to 10 percent gravel and 5 to 15 percent cobbles
Durinode content—15 to 20 percent, very weakly cemented or weakly cemented

Bt horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—cobbly ashy sandy clay loam or ashy sandy clay loam
Clay content—20 to 34 percent
Rock fragment content—10 to 25 percent total, with 5 to 10 percent gravel and 5 to 20 percent cobbles

Leevan Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Mountains and hills

Landform: Mountain slopes and hillslopes
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, rhyolite, or basalt
Slope range: 20 to 60 percent
Elevation: 5,640 to 6,700 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey-skeletal, smectitic, frigid Typic Argixerolls

Typical Pedon

Leevan very cobbly loam in an area of rangeland, in map unit 409, Leevan-Lambring-Rock outcrop complex, 20 to 60 percent slopes; Lake County, Oregon; about 1,000 feet east and 1,500 feet north of the southwest corner of section 24, T. 30 S., R. 23 E.; U.S. Geological Survey Big Juniper Mountain 7.5-minute topographic quadrangle; latitude 42 degrees, 57 minutes, 0 seconds north and longitude 119 degrees, 56 minutes, 47 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) very cobbly loam, very dark brown (10YR 2/2) moist; weak medium platy structure parting to weak fine granular; soft, very friable, moderately sticky and moderately plastic; common very fine and fine roots; common fine vesicular pores; 15 percent gravel, 20 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear smooth boundary.

A2—3 to 7 inches; dark grayish brown (10YR 4/2) very cobbly loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, very friable, moderately sticky and moderately plastic; common very fine and fine roots; few fine interstitial pores; 15 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

Bt1—7 to 16 inches; dark grayish brown (10YR 4/2) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; few fine interstitial pores; common distinct continuous clay films on faces of peds; 25 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.8); gradual smooth boundary.

Bt2—16 to 24 inches; brown (10YR 4/3) very cobbly clay, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; few fine interstitial pores; common distinct continuous clay films on faces of peds; 10 percent gravel and 30 percent cobbles; slightly alkaline (pH 7.8); gradual smooth boundary.

Bt3—24 to 31 inches; brown (10YR 5/3) very cobbly clay, dark yellowish brown (10YR 3/6) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine roots; few fine interstitial pores; common distinct continuous clay films on faces of peds; 10 percent gravel and 25 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

R—31 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 14 inches, typically does not include part of the Bt horizon
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—40 to 50 percent; rock fragment content—35 to 50 percent

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Clay content—15 to 25 percent
Rock fragment content—35 to 50 percent total, with 10 to 25 percent gravel, 15 to 25 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 3 percent
Reaction—neutral

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loam or gravelly clay loam
Clay content—20 to 32 percent
Rock fragment content—15 to 45 percent total, with 10 to 25 percent gravel, 5 to 20 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 2 percent
Reaction—neutral or slightly alkaline

Bt1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly clay loam or gravelly clay
Clay content—30 to 50 percent
Rock fragment content—25 to 40 percent total, with 15 to 30 percent gravel and 5 to 10 percent cobbles
Reaction—neutral or slightly alkaline

Bt2 horizon
Hue—7.5YR or 10YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—3 to 6 dry or moist
Texture—very cobbly clay or very gravelly clay
Clay content—40 to 60 percent
Rock fragment content—35 to 55 percent total, with 10 to 40 percent gravel and 15 to 30 percent cobbles
Reaction—neutral or slightly alkaline

Taxadjunct Features

The Leevan soil in map unit 408 is a taxadjunct to the Leevan series. This soil is classified as loamy-skeletal and mixed, and the series is classified as clayey-skeletal and smectitic. This soil does not have an argillic horizon or a mollic epipedon. Elevation ranges to as high as 4,980 feet.

Legler Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Lake terraces
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 0 to 5 percent
Elevation: 4,380 to 4,630 feet
Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Xeric Haplocambids

Typical Pedon

Legler loam in an area of rangeland, in map unit 411, Bridgewell-Legler complex, 0 to 3 percent slopes; Lake County, Oregon; about 2,200 feet north and 100 feet west of the southeast corner of section 34, T. 33 S., R. 24 E.; Rabbit Hills NE 7.5-minute topographic quadrangle; latitude 42 degrees, 39 minutes, 53 seconds north and longitude 119 degrees, 51 minutes, 51 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) moist; strong very thin, thin, and medium platy structure; slightly hard, very friable, moderately sticky and moderately plastic; many very fine roots; many fine vesicular pores; slightly alkaline (pH 7.6); abrupt smooth boundary.

A2—4 to 8 inches; light brownish gray (10YR 6/2) clay loam, brown (10YR 5/3) moist; weak medium platy structure parting to moderate fine subangular blocky; slightly hard, friable, very sticky and moderately plastic; common fine and few medium and coarse roots; common fine vesicular pores; slightly alkaline (pH 7.6); clear smooth boundary.

Bw1—8 to 16 inches; pale brown (10YR 6/3) clay loam, brown (10YR 5/3) moist; moderate fine and medium subangular blocky structure; hard, friable, very sticky and moderately plastic; common fine and few medium and coarse roots; few fine interstitial pores; common distinct continuous iron stains on vertical and horizontal faces of peds; slightly alkaline (pH 7.8); gradual wavy boundary.

Bw2—16 to 29 inches; light yellowish brown (10YR 6/4) loam, brown (10YR 4/3) moist; moderate fine and strong medium angular blocky structure; 70 percent hard and friable and 30 percent very hard and firm, moderately sticky and moderately plastic; few fine and medium roots; few fine interstitial pores; common distinct continuous iron stains on vertical and horizontal faces of peds; slightly alkaline (pH 7.4); abrupt wavy boundary.

Bk—29 to 43 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; many veins and seams of pinkish white (7.5YR 8/2) lime; moderate fine and medium prismatic structure parting to strong fine subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few fine and medium roots; common fine interstitial pores; common distinct continuous iron stains on vertical and horizontal faces of peds; slightly alkaline (pH 7.6); abrupt wavy boundary.

C—43 to 61 inches; very pale brown (10YR 7/4) and pale yellow (2.5Y 7/4) silt loam, yellowish brown (10YR 5/4) and light olive brown (2.5Y 5/4) moist; strong medium and coarse prismatic structure parting to strong medium angular blocky; very hard, friable, moderately sticky and moderately plastic; few fine and medium roots; few fine tubular pores; few distinct continuous iron stains lining pores; slightly alkaline (pH 7.6).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—18 to 35 percent; rock fragment content—0 to 15 percent
Other feature: Secondary carbonates are below a depth of 24 inches in some pedons.

A1 horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—loam

Clay content—18 to 26 percent
Rock fragment content—0 to 10 percent gravel
Organic matter content—0.5 to 1.0 percent
Reaction—neutral or slightly alkaline

A2 horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—loam, clay loam, or fine sandy loam
Clay content—18 to 35 percent
Rock fragment content—0 to 10 percent gravel
Organic matter content—0.5 to 1.0 percent
Reaction—neutral or slightly alkaline

Bw and Bk horizons
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Texture—clay loam, loam, or fine sandy loam
Clay content—18 to 35 percent
Rock fragment content—0 to 15 percent gravel
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (millimhos per centimeter)—0 to 2
Sodicity (sodium adsorption ratio)—0 to 2

C horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry, 5 moist
Chroma—4 dry or moist
Texture—loam or silt loam
Clay content—18 to 25 percent
Rock fragment content—0 to 15 percent gravel
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 5 percent
Salinity (millimhos per centimeter)—0 to 4
Sodicity (sodium adsorption ratio)—0 to 2

Lithic Haploxerolls

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava fields
Parent material: Mixed eolian deposits, volcanic ash, and colluvium derived from volcanic rock such as basalt, tuff, or rhyolite
Slope range: 2 to 15 percent
Elevation: 4,380 to 5,610 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Lithic Haploxerolls

Typical Pedon

Lithic Haploxerolls extremely stony ashy fine sandy loam in an area of rangeland; in map unit 691, Lithic Haploxerolls-Lava flows complex, 2 to 15 percent slopes;

Lake County, Oregon; about 1,900 feet south and 800 feet west of the northeast corner of section 29, T. 24 S., R. 17 E.; U.S. Geological Survey Walker Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 27 minutes, 54 seconds north and longitude 120 degrees, 41 minutes, 53 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; gray (10YR 5/1) extremely stony ashy fine sandy loam, very dark gray (10YR 3/1) moist; strong medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common fine interstitial and tubular pores; 30 percent gravel, 30 percent cobbles, and 25 percent stones; neutral (pH 7.3); clear smooth boundary.
BA—2 to 7 inches; grayish brown (10YR 5/2) extremely stony ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to strong medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine interstitial and tubular pores; 30 percent gravel, 25 percent cobbles, and 25 percent stones; neutral (pH 7.3); clear smooth boundary.
Bw—7 to 11 inches; brown (10YR 5/3) extremely stony ashy fine sandy loam, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; few very fine, fine, and medium roots; common fine interstitial and tubular pores; 30 percent gravel, 25 percent cobbles, and 25 percent stones; neutral (pH 7.3); abrupt smooth boundary.
2R—11 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 20 inches
Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—10 to 30 percent; rock fragment content—35 to 85 percent
Reaction: Neutral to moderately alkaline
Volcanic ash content: 30 to 80 percent

A horizon
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy fine sandy loam or extremely stony ashy fine sandy loam
Clay content—10 to 18 percent
Rock fragment content—0 to 90 percent total, with 0 to 45 percent gravel, 0 to 30 percent cobbles, and 0 to 45 percent stones
Organic matter content—1 or 2 percent
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

BA and Bw horizons
Hue—10YR
Value—4 to 6 dry, 2 to 5 moist
Chroma—2 to 4 dry or moist
Texture—extremely stony ashy fine sandy loam, very cobbly ashy loam, very gravelly ashy clay loam, extremely gravelly ashy sandy loam, or very stony ashy fine sandy loam
Clay content—10 to 30 percent
Rock fragment content—35 to 85 percent
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Locane Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Elevation: 4,400 to 6,040 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey-skeletal, smectitic, frigid Lithic Xeric Haplargids

Typical Pedon

Locane cobbly clay loam in an area of rangeland; in the soil survey of Lake County, Oregon, Southern Part, about 2 miles north of Spalding Reservoir; in the northeast corner of the northeast corner of section 1, T. 39 S., R. 28 E.; U.S. Geological Survey Chimney Rock 7.5-minute quadrangle; latitude and longitude not available; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; light brownish gray (10YR 6/2) cobbly clay loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 10 percent gravel and 10 percent cobbles ; slightly alkaline (pH 7.4); clear smooth boundary.

A2—2 to 10 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few medium roots; common very fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—10 to 15 inches; light yellowish brown (10YR 6/4) very cobbly clay, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure parting to strong fine angular blocky; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; many prominent clay films on the faces of peds; 20 percent gravel and 30 percent cobbles; moderately alkaline (pH 7.9); clear smooth boundary.

Bt2—15 to 18 inches; yellowish brown (10YR 5/4) very cobbly clay, dark yellowish brown (10YR 4/4) moist; strong fine angular blocky structure; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; many prominent clay films on faces of peds; 30 percent gravel and 20 percent cobbles; moderately alkaline (pH 7.9); clear smooth boundary.

R—18 inches; basalt.

Range in Characteristics

Depth to bedrock: 16 to 20 inches
Particle-size control section: Clay content—35 to 50 percent; rock fragment content—35 to 50 percent

A1 horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—cobbly clay loam or very gravelly sandy loam
Clay content—5 to 30 percent

Rock fragment content—15 to 55 percent total, with 5 to 40 percent gravel and 0 to 25 percent cobbles
Organic matter content—0.5 to 1.0 percent
Reaction—neutral or slightly alkaline

A2 horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—clay loam
Clay content—27 to 30 percent
Rock fragment content—5 to 15 percent total, with 5 to 15 percent gravel and 0 to 5 percent cobbles
Organic matter content—0.2 to 0.7 percent
Reaction—neutral or slightly alkaline

Bt horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very gravelly clay loam, very gravelly clay, or very cobbly clay
Clay content—35 to 50 percent
Rock fragment content—35 to 50 percent total, with 5 to 25 percent gravel and 15 to 35 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 2 percent

Characteristics Outside Range of Series

Reaction of the Bt horizon is slightly alkaline or moderately alkaline. Elevation ranges to 4,400 feet. The mean annual precipitation ranges to 8 inches.

Locolake Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Mixed eolian deposits over residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Elevation: 4,330 to 5,410 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy, mixed, superactive, frigid, shallow Typic Natridurids

Typical Pedon

Locolake extremely cobbly sandy loam, 2 to 15 percent slopes, in an area of rangeland, in map unit 418, Lake County, Oregon; about 4 miles north of Fivemile Point, 1.5 miles southeast of Loco Lake, and 1.1 miles northwest of Southcat waterhole along a jeep trail; 100 feet north and 850 feet east of the southwest corner of section 1, T. 32 S., R. 18 E.; U.S. Geological Survey Loco Lake 7.5-minute topographic quadrangle; latitude 42 degrees, 49 minutes, 0 seconds north and longitude 120 degrees, 32 minutes, 22 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; light brownish gray (10YR 6/2) extremely cobbly sandy loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure parting to weak fine granular; slightly hard, very friable, slightly sticky and nonplastic; few fine roots; common fine vesicular pores; 35 percent gravel, 30 percent cobbles, and 3 percent stones; moderately alkaline (pH 8.2); abrupt smooth boundary.

E—2 to 4 inches; light gray (10YR 7/2) sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; common fine vesicular pores; 8 percent gravel; moderately alkaline (pH 8.4); abrupt smooth boundary.

2Btn—4 to 7 inches; light brown (7.5YR 6/3) clay loam, brown (7.5YR 4/3) moist; moderate medium prismatic structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; common fine roots; few fine tubular pores; common distinct clay films on faces of peds; 5 percent gravel; strongly alkaline (pH 9.0); clear smooth boundary.

2Btkn—7 to 12 inches; pink (7.5YR 7/3) clay loam, brown (7.5YR 5/3) moist; moderate medium platy structure parting to weak fine subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; few faint clay films on faces of peds; 7 percent gravel and 5 percent cobbles; secondary carbonates segregated in filaments; slightly effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

2Bknq—12 to 19 inches; pink (7.5YR 8/3) extremely gravelly loam, light brown (7.5YR 6/4) moist; moderate medium platy structure; very hard, very firm and brittle, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 20 percent gravel, 10 percent cobbles, and 40 percent channers as indurated pan fragments; secondary carbonates segregated as few fine coatings on faces of peds and on the bottom of rock fragments; strongly effervescent; very strongly alkaline (pH 9.4); abrupt smooth boundary.

2Bkqm—19 to 23 inches; pink (7.5YR 8/3) duripan, light brown (7.5YR 6/4) moist; strong thick platy structure; rigid; indurated with secondary silica; secondary carbonates segregated as few fine and medium coatings on faces of peds; strongly effervescent; very strongly alkaline (pH 9.6); abrupt wavy boundary.

2R—23 inches; basalt.

Range in Characteristics

Depth to the duripan: 14 to 20 inches
Depth to bedrock: 19 to 24 inches
Depth to base of natric horizon: 12 to 20 inches
Organic matter content: 0.1 to 0.5 percent
Particle-size control section: Clay content—27 to 35 percent; rock fragment content—5 to 15 percent
Other features: The lower boundary is abrupt, and more than 15 percent (absolute) clay increase is between the E and Btn horizons.

A horizon
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—extremely cobbly sandy loam or fine sandy loam
Clay content—8 to 15 percent
Rock fragment content—0 to 70 percent total, with 0 to 45 percent gravel, 0 to 30 percent cobbles, and 0 to 5 percent stones
Reaction—moderately alkaline to very strongly alkaline (pH as high as 9.6)

E horizon
Texture—sandy loam or cobbly fine sandy loam
Clay content—10 to 16 percent

Rock fragment content—5 to 25 percent total, with 5 to 10 percent gravel and 0 to 20 percent cobbles
Reaction—moderately alkaline to very strongly alkaline (pH as high as 9.6)

2Btn horizon
Texture—clay loam or sandy clay loam
Clay content—32 to 40 percent
Rock fragment content—0 to 5 percent gravel
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

2Btkn horizon
Texture—clay loam, sandy clay loam, or cobbly sandy clay loam
Clay content—27 to 35 percent
Rock fragment content—10 to 25 percent total, with 5 to 10 percent gravel and 5 to 15 percent cobbles
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—30 to 60
Identifiable secondary carbonates—few fine coatings on rock fragments and faces of peds

2Bkqn horizon
Texture—extremely gravelly loam or very gravelly loam
Clay content—20 to 27 percent
Rock fragment content—35 to 70 percent total, with 20 to 40 percent gravel, 5 to 20 percent cobbles, and 10 to 40 percent channer-shaped, indurated duripan fragments
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—30 to 60
Secondary silica—in firm, brittle matrix
Identifiable secondary carbonates—few fine coatings on rock fragments

2Bkqm horizon
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Cementation—very strongly cemented or indurated

Lostforest Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Structural benches
Parent material: Volcanic ash and slope alluvium derived from volcanic rock such as basaltic tuff or tuff breccia
Slope range: 1 to 5 percent
Elevation: 4,300 to 4,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitrixerandic Haplocambids

Typical Pedon

Lostforest ashy very fine sandy loam in an area of rangeland, in map unit 420, Lostforest-Sandrock-Morehouse complex, 0 to 10 percent slopes; Lake County, Oregon; in the Lost Forest Research Natural Area northeast of Christmas Lake Valley; about 2,700 feet west and 2,100 feet north of the southeast corner of section 32, T. 25 S., R. 20 E.; U.S. Geological Survey Sand Rock 7.5-minute topographic quadrangle; latitude 43 degrees, 21 minutes, 42 seconds north and longitude 120 degrees, 20 minutes, 42 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; light brownish gray (10YR 6/2) ashy very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; many fine tubular pores; 5 percent gravel; medium to very coarse sand grains that are mainly pumiceous ash; slightly alkaline (pH 7.6); clear smooth boundary.

A2—2 to 5 inches; light brownish gray (10YR 6/2) ashy fine sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium granular structure; soft, very friable, slightly sticky and nonplastic; common very fine and many fine roots; many fine tubular pores; 10 percent gravel; medium to very coarse sand grains that are mainly pumiceous ash; slightly alkaline (pH 7.8); clear smooth boundary.

Bw—5 to 11 inches; light brownish gray (10YR 6/2) ashy loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and few medium and coarse roots; many fine tubular pores; 5 percent gravel; medium to very coarse sand grains that are mainly pumiceous ash; slightly alkaline (pH 7.8); clear smooth boundary.

2Bk—11 to 18 inches; light brownish gray (10YR 6/2) cobbly ashy loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium and coarse roots; common fine tubular pores; 5 percent gravel and 25 percent cobbles; medium to very coarse sand grains that are mainly pumiceous ash; secondary carbonates segregated as common fine coatings on bottom of rock fragments; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

2Bqk—18 to 22 inches; pale brown (10YR 6/3) cobbly ashy loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium and coarse roots; common fine tubular pores; 15 percent weakly cemented durinodes; 5 percent gravel and 15 percent cobbles; medium to very coarse sand grains that are mainly pumiceous ash; secondary carbonates segregated as few fine threads on durinodes and as few fine coatings on bottom of rock fragments; slightly effervescent; moderately alkaline (pH 8.0); abrupt irregular boundary.

3R—22 inches; basaltic tuff breccia; calcium carbonate coatings on surface.

Range in Characteristics

Depth to bedrock: 20 to 26 inches

Particle-size control section: Clay content—10 to 18 percent by weighted average; rock fragment content—15 to 35 percent, mainly gravel and cobbles that consist of basaltic tuff breccia

Volcanic glass content: 70 to 90 percent in the coarse silt to fine sand fractions of the Bw, Bk, and Bqk horizons, mainly in pumiceous ash grains, glass aggregates, and glass-coated mineral grains

A horizon

Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Clay content—5 to 10 percent

Rock fragment content—0 to 10 percent total, with 0 to 10 percent gravel and 0 to 5 percent cobbles
Organic matter content—0 to 0.5 percent

Bw horizon
Chroma—2 or 3 dry or moist
Texture—ashy loam, ashy sandy loam, gravelly ashy loam, gravelly ashy sandy loam, cobbly ashy loam, or cobbly ashy sandy loam
Clay content—8 to 20 percent
Rock fragment content—5 to 35 percent total, with 5 to 25 percent gravel and 0 to 15 percent cobbles

2Bk horizon
Chroma—2 or 3 dry or moist
Texture—gravelly ashy loam, gravelly ashy sandy loam, cobbly ashy loam, or cobbly ashy sandy loam
Clay content—8 to 20 percent
Rock fragment content—5 to 35 percent total, with 5 to 20 percent gravel and 10 to 25 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Effervescence—slightly effervescent in matrix; strongly effervescent carbonate coatings on rock fragments

Bqk horizon
Chroma—2 or 3 dry or moist
Texture—ashy loam, ashy sandy loam, gravelly ashy loam, gravelly ashy sandy loam, cobbly ashy loam, or cobbly ashy sandy loam
Clay content—12 to 20 percent
Rock fragment content—10 to 30 percent total, with 5 to 15 percent gravel and 5 to 20 percent cobbles
Durinode content—10 to 15 percent, weakly cemented or moderately cemented
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Effervescence—slightly effervescent in matrix; strongly effervescent carbonate coatings on rock fragments and durinodes

Ludi Series

Depth class: Moderately deep to cinders
Drainage class: Somewhat excessively drained
Landscape: Mountains
Landform: Backslopes of cinder cones
Parent material: Volcanic ash and colluvium derived from volcanic rock such as basalt over basaltic cinders
Slope range: 15 to 60 percent
Elevation: 4,440 to 6,110 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal over fragmental or cindery, glassy over mixed, frigid Vitrandic Haploxerolls

Typical Pedon

Ludi very cobbly ashy sandy loam in an area of rangeland, in map unit 429, Ludi-Glassbutte complex, 15 to 50 percent slopes; Lake County, Oregon; on Walker Butte, about 1,700 feet east and 2,600 feet north of the southwest corner of section 28, T. 23 S., R. 17 E.; U.S. Geological Survey Walker Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 33 minutes, 0 seconds north and longitude 120 degrees, 41 minutes, 14 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 5/3) very cobbly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 20 percent gravel, 20 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear smooth boundary.

A2—3 to 12 inches; brown (10YR 5/3) very gravelly ashy very fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to strong medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine interstitial pores; 40 percent gravel and 10 percent cobbles; neutral (pH 7.3); clear smooth boundary.

Bw1—12 to 21 inches; brown (10YR 5/3) very cobbly ashy very fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many fine interstitial pores; 35 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bw2—21 to 35 inches; yellowish brown (10YR 5/4) extremely cobbly ashy very fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common fine interstitial pores; 35 percent gravel, 25 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

2C—35 to 60 inches; fragmental material consisting of 100 percent gravel-sized cinders.

Range in Characteristics

Mollic epipedon thickness: 7 to 21 inches
Depth to bedrock: More than 60 inches
Depth to strongly contrasting cindery material: 20 to 40 inches
Particle-size control section: Clay content—4 to 18 percent in the upper part; rock fragment content—35 to 70 percent in the upper part and 90 to 100 percent in the strongly contrasting lower part

A1 horizon
Value—4 or 5 dry, 3 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly ashy loamy sand, gravelly ashy fine sandy loam, gravelly ashy sandy loam, very gravelly ashy sandy loam, extremely gravelly ashy sandy loam, or very cobbly ashy sandy loam
Clay content—4 to 15 percent
Rock fragment content—35 to 80 percent total, with 15 to 70 percent gravel, 0 to 30 percent cobbles, and 0 to 10 percent stones
Organic matter content—2 to 4 percent
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

A2 horizon
Value—4 or 5 dry, 3 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly ashy very fine sandy loam, very gravelly ashy loam, very gravelly ashy sandy loam, or extremely gravelly ashy sandy loam
Clay content—10 to 18 percent
Rock fragment content—35 to 70 percent total, with 25 to 65 percent gravel, 5 to 15 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 3 percent
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

Bw horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very cobbly ashy very fine sandy loam, extremely cobbly ashy very fine sandy loam, very gravelly ashy sandy loam, or extremely gravelly ashy sandy loam
Clay content—8 to 15 percent
Rock fragment content—35 to 70 percent total, with 20 to 60 percent gravel, 5 to 25 percent cobbles, and 0 to 5 percent stones
Reaction—neutral or slightly alkaline
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

2C horizon
Rock fragment content—90 to 100 percent gravel-sized basaltic cinders

Lyeflat Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Mixed eolian deposits and colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 50 percent
Elevation: 4,270 to 5,070 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy, mixed, superactive, mesic Lithic Haplocambids

Typical Pedon

Lyeflat very cobbly sandy loam in an area of rangeland, in map unit 433, Lyeflat-Rock outcrop complex, 2 to 20 percent slopes; Lake County, Oregon; about 1 mile north of Lake Abert and east of Alkali Flat; about 1,100 feet north and 200 feet west of the southeast corner of section 2, T. 33 S., R. 21 E.; U.S. Geological Survey Lake Abert North 7.5-minute topographic quadrangle; latitude 42 degrees, 44 minutes, 4 seconds north and longitude 120 degrees, 11 minutes, 54 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

An—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure parting to moderate very fine granular; soft, very friable, slightly sticky and slightly plastic; common fine roots; common fine vesicular pores; 25 percent gravel, 15 percent cobbles, and 5 percent stones; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

Bn—3 to 11 inches; pale brown (10YR 6/3) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak very fine and fine subangular blocky structure parting to moderate very fine and fine granular; soft, very friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; 20 percent gravel and 5 percent cobbles; violently effervescent; very strongly alkaline (pH 9.6); abrupt wavy boundary.

R—11 inches; basalt.

Range in Characteristics

Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—12 to 18 percent; rock fragment content—10 to 35 percent by weighted average
Effervescence: Slightly effervescent to violently effervescent

An horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly sandy loam, gravelly sandy loam, or very gravelly very fine sandy loam
Clay content—12 to 18 percent
Rock fragment content—15 to 60 percent total, with 15 to 50 percent gravel, 0 to 25 percent cobbles, and 0 to 5 percent stones
Organic matter content—0.1 to 0.5 percent
Reaction—moderately alkaline to very strongly alkaline (pH as high as 10.0)
Calcium carbonate equivalent—2 to 6 percent
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 30

Bn horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—sandy loam, loam, gravelly sandy loam, or gravelly loam
Clay content—12 to 18 percent
Rock fragment content—0 to 30 percent total, with 0 to 25 percent gravel and 0 to 10 percent cobbles
Reaction—strongly alkaline or very strongly alkaline (pH as high as 10.0)
Calcium carbonate equivalent—2 to 6 percent
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

Taxadjunct Features

The Lyeflat soil in map unit 430 is a taxadjunct to the Lyeflat series. This soil is loamy sand, has bedrock at a depth of more than 20 inches, and has durinodes. These differences, however, do not affect use and management.

McConnel Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins
Landform: Lake terraces, beach terraces, beach plains, and pediments
Parent material: Mixed alluvium and eolian deposits over lacustrine deposits and gravelly alluvium derived from mixed volcanic rock
Slope range: 0 to 45 percent

Elevation: 4,250 to 5,200 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Sandy-skeletal, mixed, mesic Xeric Haplocambids

Typical Pedon

McConnel very gravelly sandy loam, 0 to 2 percent slopes, in an area of rangeland, in map unit 436, Lake County, Oregon; about 100 feet north and 300 feet east of the southwest corner of section 34, T. 32 S., R. 19 E.; U.S. Geological Survey Coglan Buttes 7.5-minute topographical quadrangle; latitude 43 degrees, 44 minutes, 58 seconds north and longitude 120 degrees, 28 minutes, 26 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 1 inch; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine tubular pores; 35 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bw1—1 to 5 inches; light brownish gray (10YR 6/2) sandy loam, brown (10YR 4/3) moist; moderate medium platy structure parting to moderate medium granular; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bw2—5 to 12 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.8); gradual smooth boundary.

2BC—12 to 18 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to weak medium granular; soft, very friable, slightly sticky and nonplastic; common very fine roots; common very fine tubular pores; 30 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.

2Bk—18 to 60 inches; light brownish gray (10YR 6/2) very gravelly sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; 40 percent gravel; strongly effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—5 to 10 percent by weighted average; rock fragment content—50 to 80 percent by weighted average
Depth to carbonates: 10 to 20 inches

A horizon
Hue—10YR or 2.5Y
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly sandy loam, very gravelly sandy loam, gravelly loamy sand, cobbly sandy loam, or extremely gravelly sandy loam
Clay content—2 to 10 percent
Rock fragment content—15 to 80 percent total, with 5 to 80 percent gravel and 0 to 20 percent cobbles
Organic matter content—0.2 to 1.0 percent
Reaction—slightly alkaline or moderately alkaline

Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bw horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—sandy loam or loam
Clay content—5 to 15 percent
Rock fragment content—5 to 15 percent gravel
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 5 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

2BC horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—gravelly sandy loam, very gravelly sandy loam, gravelly loamy sand, very gravelly sand, or extremely gravelly sand
Clay content—5 to 15 percent
Rock fragment content—20 to 70 percent gravel
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—0 to 5 percent
Salinity (electrical conductivity)—0 to 12 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 15

2Bk horizon
Hue—10YR or 2.5Y
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—very gravelly loamy sand, very gravelly sand, extremely gravelly coarse sand, extremely gravelly sand, or extremely cobbly sand
Clay content—3 to 10 percent
Rock fragment content—35 to 80 percent total, with 35 to 85 percent gravel and 0 to 30 percent cobbles
Reaction—moderately alkaline to very strongly alkaline (pH as high as 9.4)
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—2 to 12 millimhos per centimeter
Sodicity (sodium adsorption ratio)—2 to 15

McNye Series

Depth class: Deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins
Landform: Bedrock-controlled lake terrace escarpments
Parent material: Mixed eolian deposits, alluvium, and colluvium derived from volcanic rock such as basalt
Slope range: 20 to 50 percent
Elevation: 4,440 to 6,150 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Sandy-skeletal, mixed, mesic Xeric Haplocambids

Typical Pedon

McNye cobbly loam in an area of rangeland; in the soil survey of Lake County, Oregon, Southern Part; southeast of Warner Valley; about 0.2 mile east of Soda Lake and 0.5 mile west of Twenty Mile Slough; adjacent to the jeep trail in the northwest corner of the southeast corner of section 1, T. 40 S., R. 24 E.; U.S. Geological Survey Calderwood Reservoir 7.5-minute topographic quadrangle; latitude 42 degrees, 7 minutes, 34 seconds north and longitude 119 degrees, 50 minutes, 15 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 7 inches; pale brown (10YR 6/3) cobbly loam, brown (10YR 4/3) moist; moderate thick platy structure parting to moderate medium platy; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many fine irregular and tubular pores; 10 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

Bk—7 to 16 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to weak fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; common fine irregular pores; 35 percent gravel, 10 percent cobbles, and 10 percent stones; slightly effervescent; disseminated secondary carbonates; moderately alkaline (pH 7.9); clear wavy boundary.

BC—16 to 27 inches; light yellowish brown (10YR 6/4) extremely cobbly loamy sand, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine and medium roots; many fine irregular pores; 25 percent gravel, 35 percent cobbles, and 20 percent stones; moderately alkaline (pH 7.9); gradual wavy boundary.

C—27 to 42 inches; brown (10YR 4/3) extremely gravelly loamy sand, light yellowish brown (10YR 6/4) dry; single grain; loose, nonsticky and nonplastic; few fine and medium roots; many fine irregular pores; 75 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); abrupt smooth boundary.

2R—42 inches; fractured basalt.

Range in Characteristics

Depth to bedrock: 40 to 60 inches

Particle-size control section: Clay content—1 to 10 percent; rock fragment content—50 to 85 percent

A horizon

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Texture—cobbly loam

Clay content—4 to 15 percent

Rock fragment content—25 to 35 percent total, with 10 to 20 percent gravel, 10 to 20 percent cobbles, and 0 to 10 percent stones

Organic matter content—1 or 2 percent

Calcium carbonate equivalent—0 to 1 percent

Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bk horizon

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly sandy loam

Clay content—4 to 15 percent

Rock fragment content—45 to 60 percent total, with 30 to 45 percent gravel, 5 to 15 percent cobbles, and 0 to 10 percent stones

Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

BC and C horizons
Value—6 or 7 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—extremely cobbly loamy sand or extremely gravelly loamy sand
Clay content—0 to 5 percent
Rock fragment content—60 to 85 percent total, with 25 to 75 percent gravel, 5 to 40 percent cobbles, and 0 to 20 percent stones
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Meld Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Basins
Landform: Fan remnants
Parent material: Volcanic ash mixed with alluvium derived from mixed volcanic rock
Slope range: 2 to 20 percent
Elevation: 4,450 to 4,950 feet
Mean annual precipitation: 11 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Durixerolls

Typical Pedon

Meld ashy loam in an area of rangeland, in map unit 442, Meld-Giranch complex, 2 to 20 percent slopes; Lake County, Oregon; on the northeast slope of Glass Butte; in the southwest corner of the northeast corner of the northeast corner of section 15, T. 23 S., R. 22 E.; U.S. Geological Survey Glass Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 34 minutes, 58 seconds north and longitude 120 degrees, 3 minutes, 35 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; grayish brown (10YR 5/2) ashy loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; common roots; many vesicular pores; 10 percent gravel; neutral (pH 6.7); clear smooth boundary.
Bt1—3 to 16 inches; brown (10YR 5/3) ashy clay loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, sticky and plastic; common roots; common very fine tubular pores; few faint clay films on faces of peds; 10 percent gravel; neutral (pH 6.7); clear wavy boundary.
Bt2—16 to 20 inches; brown (10YR 5/3) gravelly ashy clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; hard, firm, sticky and plastic; few roots; common fine tubular pores; few thin clay films on peds and in pores; about 30 percent gravel; neutral (pH 6.7); clear wavy boundary.
Bt3—20 to 33 inches; brown (10YR 4/3) very gravelly ashy clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; few roots; common very fine tubular pores; few thin clay films on peds and in pores; 50 percent gravel; neutral (pH 6.7);; abrupt wavy boundary.

Bqm—33 to 40 inches; light brownish gray (10YR 6/2) duripan, dark grayish brown (10YR 4/2) moist; platy, indurated, thick coatings of opal on surfaces of plates.

Range in Characteristics

Mollic epipedon thickness: 10 to 20 inches
Depth to the duripan: 20 to 40 inches
Depth to bedrock: More than 80 inches
Particle-size control section: Clay content—27 to 35 percent; rock fragment content—20 to 35 percent by weighted average
Reaction: Neutral
Volcanic glass content: 30 to 60 percent in coarse silt to fine sand fractions

A horizon
Value—4 or 5 dry, 2 or 3 moist
Texture—ashy loam or gravelly ashy very fine sandy loam
Clay content—5 to 20 percent
Rock fragment content—5 to 30 percent gravel
Organic matter content—2 to 3 percent

Bt1 horizon
Value—3 or 4 moist
Texture—ashy clay loam
Clay content—27 to 32 percent
Rock fragment content—5 to 15 percent gravel

Bt2 and Bt3 horizons
Value—3 or 4 moist
Texture—gravelly ashy clay loam over very gravelly ashy clay loam
Clay content—30 to 35 percent
Rock fragment content—25 to 50 percent gravel

Menbo Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes and summits
Parent material: Mixed volcanic ash and colluvium derived from volcanic rock such as basalt
Slope range: 5 to 25 percent
Elevation: 4,500 to 4,650 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey-skeletal, smectitic, frigid Vitrandic Argixerolls

Typical Pedon

Menbo stony ashy loam in an area of rangeland; in the soil survey of Upper Deschutes River Area, Oregon; on a northeast slope of Pine Mountain; in the southwest corner of the northwest corner of section 20, T. 20 S., R. 16 E.; U.S. Geological Survey Millican SE 7.5-minute topographic quadrangle; latitude 43 degrees, 49 minutes, 24 seconds north and longitude 120 degrees, 50 minutes, 36 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) stony ashy loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many irregular pores; 10 percent gravel and 10 percent stones; neutral (pH 6.7); clear wavy boundary.

A2—3 to 8 inches; dark grayish brown (10YR 4/2) gravelly ashy loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; many roots; many irregular pores; 20 percent gravel and 5 percent cobbles; neutral (pH 6.7); clear wavy boundary.

2Bt—8 to 26 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; hard, firm, very sticky and plastic; common roots; common very fine tubular pores; common distinct clay films on faces of peds and few faint clay films in pores; 20 percent gravel and 20 percent cobbles; neutral (pH 6.7); abrupt irregular boundary.

2R—26 inches; fractured basalt.

Range in Characteristics

Mollic epipedon thickness: 20 to 35 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—35 to 50 percent; rock fragment content—35 to 55 percent

A1 horizon
Value—4 or 5 dry
Chroma—2 or 3 dry or moist
Texture—stony ashy loam
Clay content—10 to 18 percent
Rock fragment content—15 to 35 percent total, with 5 to 15 percent gravel, 0 to 5 percent cobbles, and 10 to 25 percent stones
Organic matter content—1 to 3 percent
Volcanic glass content—5 to 15 percent

A2 horizon
Value—4 or 5 dry
Chroma—2 or 3 dry or moist
Texture—gravelly ashy loam
Clay content—10 to 18 percent
Rock fragment content—15 to 35 percent total, with 15 to 25 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 2 percent
Volcanic glass content—5 to 15 percent

2Bt horizon
Hue—10YR or 7.5YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly clay loam, very gravelly clay loam, or very cobbly clay
Clay content—35 to 50 percent
Rock fragment content—35 to 55 percent total, with 20 to 40 percent gravel, 10 to 25 percent cobbles, and 0 to 5 percent stones
Reaction—neutral or slightly alkaline

Merlin Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus, calderas, and plug domes

Parent material: Residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 0 to 15 percent
Elevation: 5,820 to 6,270 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey, smectitic, frigid Lithic Argixerolls

Typical Pedon

Merlin extremely stony loam, 0 to 15 percent slopes, in an area of rangeland, in map unit 444; in Lake County, Oregon; in the northwest corner of the northeast corner of section 23, T. 36 S. R. 21 E.; U.S. Geological Survey Little Honey Creek 7.5-minute topographic quadrangle; latitude and longitude data not available. (Colors are for moist soil unless otherwise stated.)

A—0 to 4 inches; very dark grayish brown (10YR 3/2) extremely stony loam, brown (10YR 5/3) dry; moderate medium platy structure parting to moderate fine granular; slightly hard, friable, moderately sticky and slightly plastic; many very fine and fine roots; common very fine and fine irregular pores; 25 percent gravel, 15 percent cobbles, and 20 percent stones; neutral (pH 6.6); clear smooth boundary.
Bat—4 to 7 inches; dark brown (10YR 3/3) gravelly clay loam, brown (10YR 5/3) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, very sticky and moderately plastic; many very fine and fine roots; common very fine and fine tubular pores; common faint clay films on faces of peds; 15 percent gravel and 5 percent cobbles; neutral (pH 6.6); clear smooth boundary.
Bt1—7 to 12 inches; dark brown (10YR 3/3) clay, brown (7.5YR 5/3) dry; moderate fine subangular blocky structure; hard, firm, very sticky and very plastic; common very fine roots; common very fine tubular pores; common distinct clay films on faces of peds and in pores; 10 percent gravel; neutral (pH 6.6); abrupt smooth boundary.
Bt2—12 to 18 inches; brown (7.5YR 3/4) clay, brown (7.5YR 5/4) dry; strong fine angular blocky structure; very hard, firm, very sticky and very plastic; few fine roots; few fine tubular pores; many distinct clay films on faces of peds and in pores; neutral (pH 6.6); abrupt smooth boundary.
R—18 inches; fractured basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 15 inches
Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—more than 50 percent by weighted average; rock fragment content—5 to 15 percent by weighted average

A horizon
Hue—7.5YR or 10YR
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 1 to 3 dry
Texture—extremely stony loam
Clay content—16 to 24 percent
Rock fragment content—60 to 75 percent total, with 20 to 35 percent gravel, 15 to 25 percent cobbles, and 20 to 30 percent stones
Organic matter content—2 to 4 percent
Reaction—neutral or slightly alkaline

BAt horizon
Hue—7.5YR or 10YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—2 or 3 moist or dry, ranging to 4 at a depth of 7 inches or more
Texture—gravelly clay loam
Clay content—32 to 38 percent
Rock fragment content—15 to 25 percent total, with 10 to 15 percent gravel, 0 to 5 percent cobbles, and 0 to 5 percent stones
Reaction—neutral or slightly alkaline

Bt horizon
Hue—7.5YR or 10YR
Value—3 or 4 moist, 4 or 5 dry
Chroma—2 to 4 moist or dry
Texture—clay
Clay content—50 to 70 percent
Rock fragment content—0 to 15 percent total, with 0 to 15 percent gravel, 0 to 5 percent cobbles, and 0 to 5 percent stones
Reaction—neutral or slightly alkaline

Mesman Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Lake terraces
Parent material: Eolian and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 8 percent
Elevation: 4,260 to 4,690 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Xeric Natrargids

Typical Pedon

Mesman gravelly sandy loam in an area of rangeland, in map unit 447, Mesman-McConnel-Kewake complex, 2 to 8 percent slopes; Lake County, Oregon; about 1,900 feet north and 1,400 feet west of the southeast corner of section 27, T. 34 S., R. 20 E.; U.S. Geological Survey Coglan Buttes SE 7.5-minute topographic quadrangle; latitude 42 degrees, 35 minutes, 30 seconds north and longitude 120 degrees, 20 minutes, 32 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

An1—0 to 2 inches; brown (10YR 5/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common fine and medium interstitial pores; 20 percent gravel; moderately alkaline (pH 8.2); clear smooth boundary.
An2—2 to 7 inches; pale brown (10YR 6/3) sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common fine, medium, and coarse vesicular pores; moderately alkaline (pH 8.2); 10 percent gravel; abrupt smooth boundary.
2Btqnz—7 to 18 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to strong medium subangular

blocky; hard, firm, moderately sticky and moderately plastic; common very fine and fine and few medium roots; common fine and medium irregular and tubular pores; common faint and few distinct continuous clay films on faces of peds; 15 percent durinodes; strongly alkaline (pH 9.0); clear smooth boundary.

2Btn—18 to 26 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, firm, slightly sticky and slightly plastic; few very fine, common fine, and few medium roots; common fine and medium irregular and tubular pores; common faint continuous clay films on faces of peds; strongly alkaline (pH 8.8); clear smooth boundary.

3Bkn1—26 to 46 inches; light yellowish brown (10YR 6/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive, soft, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common fine and medium irregular and tubular pores; slightly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

3Bkn2—46 to 63 inches; light gray (10YR 7/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common fine and medium irregular and tubular pores; disseminated carbonates; strongly alkaline (pH 9.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to natric horizon: 6 to 13 inches
Particle-size control section: Clay content—18 to 30 percent; rock fragment content—0 to 10 percent gravel

An1 horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—fine sandy loam or gravelly sandy loam
Clay content—5 to 14 percent
Rock fragment content—0 to 30 percent gravel
Organic matter content—1 to 2 percent
Reaction—slightly alkaline to strongly alkaline
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 30

An2 horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—sandy loam
Clay content—8 to 14 percent
Rock fragment content—0 to 10 percent gravel
Organic matter content—0.5 to 1.0 percent
Reaction—slightly alkaline to strongly alkaline
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 30

2Btnqz and 2Btn horizons
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—loam, clay loam, sandy loam, or sandy clay loam
Clay content—18 to 30 percent
Rock fragment content—0 to 10 percent gravel
Durinode content—0 to 15 percent

Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—16 to 40 millimhos per centimeter
Sodicity (sodium adsorption ratio)—20 to 70

3Bkn horizon
Value—6 to 8 dry, 3 to 6 moist
Chroma—2 to 4 dry or moist
Texture—very fine sandy loam, fine sandy loam, or sandy loam
Clay content—10 to 20 percent
Rock fragment content—0 to 10 percent gravel
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—16 to 50 millimhos per centimeter
Sodicity (sodium adsorption ratio)—20 to 70
Other feature—lenses of white volcanic ash in some pedons

Characteristics Outside Range of Series

The 2Btnqz horizon is 15 percent durinodes. The 3Bkn horizon does not have identifiable secondary carbonates.

Milcan Series

Depth class: Moderately deep to a duripan
Drainage class: Somewhat excessively drained
Landscape: Lava plateaus
Landform: Lava plains
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 1 to 5 percent
Elevation: 4,340 to 4,860 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Durixerolls

Typical Pedon

Milcan ashy loamy sand, 1 to 5 percent slopes, in an area of rangeland, in map unit 448, Lake County, Oregon; about 900 feet east and 1,700 feet south of the northwest corner of section 15, T. 26 S., R. 17 E.; U.S. Geological Survey Crack-in-the-ground 7.5-minute topographic quadrangle; latitude 43 degrees, 19 minutes, 14 seconds north and longitude 120 degrees, 41 minutes, 44 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; brown (10YR 5/3) ashy loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common fine and medium roots; common fine interstitial pores; 5 percent gravel; 25 percent sand-sized pumiceous ash grains; neutral (7.2); clear wavy boundary.

A2—2 to 10 inches; brown (10YR 4/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and medium roots; common fine interstitial pores; 20 percent sand-sized pumiceous ash grains; slightly alkaline (pH 7.6); gradual smooth boundary.

Bq1—10 to 18 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate thin and medium platy structure parting to weak fine granular and moderate medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; few fine and coarse roots; common fine interstitial pores; 15 percent durinodes; slightly alkaline (pH 7.6); clear smooth boundary.

Bq2—18 to 34 inches; brown (10YR 5/3) ashy loamy fine sand, dark brown (10YR 3/3) moist; moderate thin and medium platy structure parting to weak fine granular; slightly hard, friable, slightly sticky and nonplastic; few coarse roots; common fine interstitial pores; 25 percent durinodes and pockets of firm, brittle soil material; moderately alkaline (pH 8.2); abrupt wavy boundary.

2Bqm—34 inches; brown (10YR 5/3) duripan, dark brown (10YR 3/3) moist; extremely hard; indurated; cemented with secondary silica.

Range in Characteristics

Mollic epipedon thickness: 10 to 20 inches
Depth to the duripan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—5 to 15 percent; rock fragment content—0 to 25 percent fragments that are volcanic rock such as basalt
Volcanic glass content: 30 to 60 percent in coarse silt to fine sand fractions

A1 horizon
Value—4 or 5 dry, 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sandy, ashy sand, ashy loam, or cobbly ashy loamy sand
Clay content—2 to 15 percent
Rock fragment content—0 to 35 percent total, with 0 to 20 percent gravel and 0 to 15 percent cobbles
Organic matter content—1 to 2 percent
Reaction—neutral or slightly alkaline

A2 horizon
Value—4 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand, gravelly ashy sandy loam, ashy sandy loam, or gravelly ashy loamy sand
Clay content—5 to 15 percent
Rock fragment content—0 to 25 percent gravel
Organic matter content—1 to 2 percent
Reaction—neutral or slightly alkaline

Bq horizon
Texture—ashy sandy loam, gravelly ashy sandy loam, ashy fine sandy loam, ashy loamy fine sand, or gravelly ashy loamy fine sand
Clay content—5 to 15 percent
Rock fragment content—0 to 25 percent gravel
Durinode content—0 to 25 percent
Reaction—neutral to moderately alkaline

Millenium Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Lakebeds
Parent material: Eolian and lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Elevation: 4,370 to 5,000 feet
Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Argixerolls

Typical Pedon

Millenium ashy fine sandy loam in an area of rangeland, in map unit 452, Millenium-Stauffer-Raztack complex, 0 to 2 percent slopes; Lake County, Oregon; east of Stauffer Rim and about 3,000 feet northeast of Stauffer Well; about 2,700 feet south and 50 feet west of the northeast corner of section 10, T. 24 S., R. 21 E.; U.S. Geological Survey Potato Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 30 minutes, 25 seconds north and longitude 120 degrees, 10 minutes, 30 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate thick platy structure parting to weak fine granular; soft, very friable, slightly sticky and nonplastic; many very fine and common fine and medium roots; common very fine and fine and few medium interstitial and tubular pores; slightly alkaline (pH 7.4); clear smooth boundary.

A2—3 to 9 inches; grayish brown (10YR 5/2) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak thick platy structure parting to moderate coarse subangular blocky; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and fine and few medium interstitial and tubular pores; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bt1—9 to 14 inches; brown (10YR 5/3) ashy sandy clay loam, brown (10YR 4/3) moist; weak medium platy structure parting to moderate medium subangular blocky; hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; few very fine, fine, and medium tubular pores; common faint clay films on faces of peds and lining pores; slightly alkaline (pH 7.5); clear smooth boundary.

Bt2—14 to 22 inches; 50 percent light yellowish brown (10YR 6/4) and 50 percent light brownish gray (10YR 6/2) ashy sandy clay loam, brown (10YR 4/3) and dark grayish brown (10YR 4/2) moist; moderate medium prismatic structure parting to strong coarse angular blocky; hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine tubular pores; common distinct and few prominent dark brown (7.5YR 3/3) clay films on faces of peds and lining pores; few prominent dark brown (7.5YR 3/2) organic clay films on faces of peds; slightly alkaline (pH 7.6); clear wavy boundary.

Btq—22 to 30 inches; pale brown (10YR 6/3) ashy sandy loam, dark grayish brown (10YR 4/2) moist; moderate thick platy structure parting to moderate medium subangular blocky; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine tubular pores; few distinct clay films on faces of peds; common distinct secondary silica coatings on faces of peds; few thin layers that are silty clay loam; slightly alkaline (pH 7.6); clear wavy boundary.

BCq—30 to 38 inches; pale brown (10YR 6/3), stratified ashy silty clay loam to ashy loamy sand, brown (10YR 4/3) and dark grayish brown (10YR 4/2) moist; moderate thick platy structure parting to moderate medium angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine tubular pores; few distinct secondary silica coatings on faces of peds; slightly alkaline (pH 7.6); abrupt wavy boundary.

C1—38 to 47 inches; pale brown (10YR 6/3) ashy silty clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to strong fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine and few medium tubular pores; many fine and medium distinct relict masses of iron accumulation that are strong brown (7.5YR 4/6) moist; slightly alkaline (pH 7.6); abrupt smooth boundary.

2C2—47 to 65 inches; light brownish gray (2.5Y 6/2) ashy loamy fine sand, olive brown (2.5Y 4/3) moist; moderate coarse prismatic structure parting to weak coarse subangular blocky; slightly hard, very friable, nonsticky and nonplastic; few very fine, fine, and medium tubular pores; one 2-inch stratum of ashy sand at the top of horizon; common fine and medium distinct relict masses of iron accumulation that are strong brown (7.5YR 4/6) moist; slightly alkaline (pH 7.8).

Range in Characteristics

Mollic epipedon thickness: 8 to 10 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—18 to 27 percent by weighted average
Reaction: Slightly alkaline
Volcanic glass content: 35 to 95 percent in coarse silt to fine sand fractions

A1 horizon
Texture—ashy fine sandy loam or ashy silt loam
Clay content—5 to 15 percent
Organic matter content—1 to 3 percent

A2 horizon
Texture—ashy fine sandy loam
Clay content—8 to 15 percent
Organic matter content—1 to 3 percent

Bt horizon
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—ashy sandy clay loam or ashy clay loam
Clay content—25 to 35 percent

Btq horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam
Clay content—15 to 20 percent

BCq and C horizons
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—stratified ashy loamy sand to ashy silty clay loam
Clay content—10 to 30 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

2C horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand, ashy loamy fine sand, or ashy sandy loam
Clay content—5 to 15 percent
Other feature—masses of iron accumulation, which are relict redoximorphic concentrations, in some pedons

Moonbeam Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus

Landform: Lava plateaus
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 0 to 20 percent
Elevation: 4,350 to 5,720 feet
Mean annual precipitation: 9 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey, smectitic, frigid, shallow Vitritorrandic Durixerolls

Typical Pedon

Moonbeam very cobbly ashy loam, 1 to 8 percent slopes, in an area of rangeland, in map unit 459; Lake County, Oregon; about 1 mile northwest of Chicago Valley Well; about 1,100 feet south and 2,400 feet west of the northeast corner of section 13, T. 24 S., R. 20 E.; U.S. Geological Survey Moonlight Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 29 minutes, 47 seconds north and longitude 120 degrees, 15 minutes, 49 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) very cobbly ashy loam, dark brown (10YR 3/3) moist; moderate very thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and fine and few medium vesicular pores; 25 percent gravel, 10 percent cobbles, and 4 percent stones; slightly alkaline (pH 7.6); abrupt smooth boundary.

A2—3 to 8 inches; grayish brown (10YR 5/2) gravelly ashy sandy clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, many fine, and few medium roots; common very fine and fine vesicular and tubular pores; 15 percent gravel and 4 percent cobbles; slightly alkaline (pH 7.7); abrupt smooth boundary.

2Bt1—8 to 14 inches; light brown (7.5YR 6/3) clay, brown (7.5YR 4/3) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, friable, moderately sticky and very plastic; few very fine, fine, and medium roots; few very fine tubular pores; common faint and few distinct clay films on faces of peds; slightly alkaline (pH 7.8); clear smooth boundary.

2Bt2—14 to 18 inches; light brown (7.5YR 6/3) clay, brown (7.5YR 4/3) moist; moderate medium subangular blocky structure parting to strong fine angular blocky; hard, firm, moderately sticky and very plastic; few very fine, fine, and medium roots; few very fine tubular pores; common distinct clay films on faces of peds; moderately alkaline (pH 8.0); abrupt smooth boundary.

2Bkqm—18 to 27 inches; very pale brown (10YR 8/2) cemented material, light yellowish brown (10YR 6/4) moist; strong very thick platy structure; very rigid, indurated with secondary silica; widely spaced fractures in the upper part; secondary carbonates segregated as few medium coatings on bottom of peds; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

2R—27 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 8 to 12 inches
Depth to the duripan: 13 to 20 inches
Depth to bedrock: 20 to 40 inches

Particle-size control section: Clay content—35 to 50 percent; rock fragment content—0 to 20 percent
Other feature: Basalt fragments or detached indurated duripan fragments

A1 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—stony ashy fine sandy loam, extremely cobbly ashy loam, extremely stony ashy sandy loam, ashy fine sandy loam, cobbly ashy loam, very gravelly ashy loam, cobbly ashy fine sandy loam, very cobbly ashy loam, stony ashy sandy loam, ashy very fine sandy loam, cobbly ashy very fine sandy loam, gravelly ashy loam, very stony ashy loam, or gravelly ashy fine sandy loam
Clay content—5 to 20 percent
Rock fragment content—0 to 80 percent total, with 0 to 40 percent gravel, 0 to 40 percent cobbles, and 0 to 40 percent stones
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline
Volcanic glass content—20 to 65 percent in coarse silt to fine sand fractions

A2 horizon
Value—4 or 5 dry
Chroma—2 or 3 dry or moist
Texture—ashy sandy clay loam, gravelly ashy sandy clay loam, ashy fine sandy loam, or cobbly ashy fine sandy loam
Clay content—16 to 25 percent
Rock fragment content—10 to 25 percent total, with 5 to 20 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 2 percent
Reaction—neutral or slightly alkaline
Volcanic glass content—20 to 65 percent in coarse silt to fine sand fractions

2Bt1 horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—clay or clay loam
Clay content—35 to 50 percent
Rock fragment content—0 to 15 percent total, with 0 to 10 percent gravel and 0 to 10 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Volcanic glass content—15 to 30 percent in coarse silt to fine sand fractions

2Bt2 horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Texture—clay or cobbly clay
Clay content—40 to 50 percent
Rock fragment content—0 to 20 percent total, with 0 to 10 percent gravel and 0 to 15 percent cobbles
Reaction—slightly alkaline or moderately alkaline

2Bkqm horizon
Hue—10YR or 7.5YR
Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4 moist
Cementation—very strongly cemented or indurated

Morehouse Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins and lava plateaus
Landform: Dunes on lakebeds, sand sheets, lava plateaus, and escarpments
Parent material: Volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits and very deep deposits of volcanic ash and eolian sand derived from mixed volcanic rock
Slope range: 0 to 35 percent
Elevation: 4,290 to 4,840 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, nonacid, frigid Vitrandic Torripsamments

Typical Pedon

Morehouse ashy loamy fine sand, 2 to 20 percent slopes, in an area of rangeland, in map unit 472; Lake County, Oregon; in Fort Rock Valley, about 9 miles northwest of the town of Christmas Valley; about 1,200 feet south of the northeast corner of section 20, T. 26 S., R. 16 E.; U.S. Geological Survey Lane Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 18 minutes, 17 seconds north and longitude 120 degrees, 50 minutes, 17 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 5 inches; grayish brown (10YR 5/2) ashy loamy fine sand, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common fine interstitial pores; 50 percent very pale brown (10YR 7/3), fine and medium, sand-sized (0.1 to 0.5 millimeter) pumiceous ash grains; strongly alkaline (pH 8.6); clear smooth boundary.

AC—5 to 22 inches; grayish brown (10YR 5/2) ashy loamy sand, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few fine interstitial pores; 45 percent very pale brown (10YR 7/3), fine and medium, sand-sized (0.1 to 0.5 millimeter) pumiceous ash grains; strongly alkaline (pH 8.6); clear smooth boundary.

C—22 to 41 inches; light brownish gray (10YR 6/2) ashy loamy sand, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, friable, nonsticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 40 percent very pale brown (10YR 7/3), fine and medium, sand-sized (0.1 to 0.5 millimeter) pumiceous ash grains; moderately alkaline (pH 8.2); abrupt smooth boundary.

2Bknb1—41 to 50 inches; pale brown (10YR 6/3) ashy loam, dark brown (10YR 3/3) moist; strong fine and medium subangular blocky structure; very hard, very firm, slightly sticky and nonplastic; slightly effervescent; secondary carbonates segregated in common fine irregularly shaped masses; strongly alkaline (pH 9.0); clear smooth boundary.

2Bknb2—50 to 60 inches; pale brown (10YR 6/3) ashy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; strongly effervescent; secondary carbonates segregated in many medium irregularly shaped masses; very strongly alkaline (pH 9.4).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to buried horizons: 40 to 60 inches or more
Depth to secondary carbonates: 40 to 60 inches or more
Particle-size control section: Clay content—3 to 10 percent by weighted average; rock fragment content—less than 15 percent by weighted average, mainly fine gravel

A horizon
Value—4 or 5 dry
Chroma—2 or 3 dry or moist
Texture—ashy loamy fine sand, ashy sand, ashy fine sand, or ashy sandy loam
Clay content—3 to 15 percent
Rock fragment content—0 to 15 percent fine gravel
Organic matter content—0.5 to 1.0 percent
Reaction—slightly alkaline to strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 1
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

AC horizon (where present)
Texture—ashy loamy sand or gravelly ashy loamy coarse sand
Clay content—3 to 8 percent
Rock fragment content—0 to 20 percent fine gravel
Reaction—slightly alkaline to strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 1
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

C horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand or gravelly ashy loamy coarse sand
Clay content—3 to 8 percent
Rock fragment content—0 to 30 percent fine gravel
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 1
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

2Bknb horizon (where present)
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—ashy loam or ashy silt loam
Clay content—10 to 25 percent
Rock fragment content—0 to 15 percent fine gravel
Reaction—strongly alkaline or very strongly alkaline (pH as high as 11.0)
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—2 to 13

Morfitt Series

Depth class: Very deep to bedrock
Drainage class: Moderately well drained
Landscape: Basins
Landform: Alluvial fans and basin floors
Parent material: Alluvium derived from argillite, shale, and reworked older terrace sediment
Slope range: 0 to 2 percent
Elevation: 4,460 to 4,840 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 47 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Xeric Haplargids

Typical Pedon

Morfitt loam, 0 to 2 percent slopes, in an area of rangeland, in map unit 476, Lake County, Oregon; about 1,250 feet west and 900 feet south of the northeast corner of section 18, T. 31 S., R. 23 E.; U.S. Geological Survey Alkali Lake 7.5-minute topographic quadrangle; latitude 42 degrees, 53 minutes, 29 seconds north and longitude 120 degrees, 2 minutes, 49 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; light gray (10YR 7/2) loam, brown (10YR 4/3) moist; moderate thin platy structure parting to weak fine granular; slightly hard, friable, moderately sticky and moderately plastic; common fine and medium roots; common fine vesicular pores; moderately alkaline (pH 8.0); abrupt smooth boundary.

BA—3 to 7 inches; light brownish gray (10YR 6/2) loam, brown (10YR 4/3) moist; strong very fine angular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common fine and medium roots; few fine interstitial pores; moderately alkaline (pH 8.4); clear smooth boundary.

Bt—7 to 25 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure parting to strong very fine angular blocky; slightly hard, friable, moderately sticky and moderately plastic; common fine roots; few fine interstitial pores; common faint continuous clay films on faces of peds; moderately alkaline (pH 8.4); clear wavy boundary.

C—25 to 60 inches; light yellowish brown (2.5Y 6/3) clay loam, olive brown (2.5Y 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; few fine interstitial pores; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to secondary carbonates: 40 to 60 inches or more
Depth to water table: As much as 3 inches above the surface at some time during April and June (occasional ponding)
Particle-size control section: Clay content—25 to 35 percent; rock fragment content—0 to 5 percent gravel
Reaction: Neutral to moderately alkaline

A horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—loam

Clay content—18 to 26 percent
Rock fragment content—0 to 5 percent gravel
Organic matter content—0.3 to 0.5 percent

BA horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—loam
Clay content—20 to 27 percent
Rock fragment content—0 to 5 percent gravel

Bt horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—loam, clay loam, or silty clay loam
Clay content—25 to 35 percent
Rock fragment content—0 to 5 percent gravel

C horizon
Hue—10YR or 2.5Y
Value—4 to 7 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—loam or clay loam
Clay content—25 to 35 percent
Rock fragment content—0 to 5 percent gravel
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Murlose Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt
Slope range: 1 to 20 percent
Elevation: 4,500 to 5,100 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid, shallow Vitrandic Durixerolls

Typical Pedon

Murlose gravelly ashy coarse sandy loam, 1 to 6 percent slopes, in an area of rangeland, in map unit 478; Lake County, Oregon; about 12 miles northwest of the village of Silver Lake; about 1,000 feet south and 1,100 feet west of the northeast corner of section 17, T. 28 S., R. 13 E.; U.S. Geological Survey Oatman Flat 7.5-minute topographic quadrangle; latitude 43 degrees, 8 minutes, 49 seconds north and longitude 121 degrees, 11 minutes, 43 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly ashy coarse sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common fine irregular pores; 15 percent gravel and 2 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

A2—3 to 11 inches; grayish brown (10YR 5/2) cobbly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to strong coarse granular; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; 15 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bt—11 to 19 inches; pale brown (10YR 6/3) cobbly ashy sandy clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to weak fine angular blocky; slightly hard, friable, moderately sticky and moderately plastic; common fine roots; common fine tubular pores; 10 percent gravel and 10 percent cobbles; common faint and few distinct clay films on faces of peds; slightly alkaline (pH 7.5); clear smooth boundary.

Bqm—19 to 22 inches; light yellowish brown (10YR 6/4) cemented material, dark yellowish brown (10YR 4/4) moist; strong medium platy structure; extremely hard, slightly rigid; strongly cemented with secondary silica; common fine very dark brown (10YR 2/2) manganese nodules; abrupt wavy boundary.

R—22 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 8 to 12 inches, includes the Bt horizon in some pedons
Depth to the duripan: 15 to 19 inches
Depth to bedrock: 20 to 24 inches
Particle-size control section: Clay content—20 to 35 percent; rock fragment content—15 to 30 percent

A1 horizon
Texture—gravelly ashy coarse sandy loam, cobbly ashy loam, or gravelly ashy sandy loam
Clay content—8 to 25 percent
Organic matter content—1 to 3 percent
Rock fragment content—15 to 35 percent total, with 10 to 35 percent gravel and 0 to 25 percent cobbles
Volcanic glass content—50 to 90 percent in coarse silt to fine sand fractions

A2 horizon
Texture—cobbly ashy sandy loam
Clay content—10 to 18 percent
Rock fragment content—15 to 35 percent total, with 5 to 25 percent gravel and 10 to 20 percent cobbles
Organic matter content—1 to 3 percent
Volcanic glass content—50 to 90 percent in coarse silt to fine sand fractions

Bt horizon
Value—4 to 6 dry, 2 to 4 moist
Chroma—2 or 3 dry or moist
Texture—cobbly ashy clay loam or cobbly ashy sandy clay loam
Clay content—20 to 35 percent
Rock fragment content—15 to 30 percent total, with 5 to 15 percent gravel and 10 to 20 percent cobbles
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

Nevador Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Fan remnants

Parent material: Alluvium and eolian deposits derived from mixed volcanic rock
Slope range: 0 to 8 percent
Elevation: 4,710 to 4,800 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Durinodic Xeric Haplargids

Typical Pedon

Nevador sandy loam in an area of rangeland, in map unit 637, Toll-Nevador complex, 0 to 15 percent slopes; Lake County, Oregon; in the northwest corner of the northeast corner of section 27, T. 31 S., R. 27 E., U.S. Geological Survey Steamboat Point NE 7.5-minute topographic quadrangle; latitude 42 degrees, 51 minutes, 48 seconds north and longitude 119 degrees, 19 minutes, 12 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and fine and few medium irregular pores; 10 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt1—4 to 12 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 3/4) moist; weak medium prismatic structure parting to moderate coarse and medium subangular blocky; slightly hard, friable, moderately sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and fine and few medium interstitial pores; common faint clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—12 to 25 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate coarse and medium subangular blocky; slightly hard, friable, moderately sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; common faint clay films on faces of peds; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bkq—25 to 30 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; few very fine and fine interstitial pores; 60 percent gravel and 5 percent cobbles; 15 percent durinodes; strongly effervescent; secondary carbonates are disseminated; moderately alkaline (pH 8.2); clear smooth boundary.

Bq1—30 to 45 inches; pale brown (10YR 6/3) loamy fine sand, dark brown (10YR 3/3) moist; single grain; loose, slightly sticky and nonplastic; few very fine and fine roots; few very fine and fine interstitial pores; 15 percent durinodes; moderately alkaline (pH 8.0); gradual wavy boundary.

Bq2—45 to 60 inches; light yellowish brown (10YR 6/4) loamy fine sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, slightly sticky and nonplastic; few very fine and fine interstitial pores; 10 percent durinodes; moderately alkaline (pH 8.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to horizons with durinodes: 12 to 25 inches
Depth to secondary carbonates: 12 to 25 inches
Particle-size control section: Clay content—20 to 35 percent; rock fragment content—0 to 15 percent

Other features: Lithology of fragments is mixed rock sources. Some pedons have a C horizon.

A horizon
Value—5 or 6 dry (the upper 7 inches of the soil has value of 6 dry when mixed), 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—sandy loam
Clay content—8 to 15 percent
Rock fragment content—0 to 15 percent gravel
Organic matter content—0.3 to 0.5 percent
Reaction—neutral or slightly alkaline

Bt horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—clay loam, sandy clay loam, or loam
Clay content—20 to 35 percent
Rock fragment content—0 to 15 percent gravel
Reaction—neutral to moderately alkaline
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 5

Bqk horizon
Value—5 or 6 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—gravelly fine sandy loam, extremely gravelly sandy loam, or extremely gravelly loamy sand
Clay content—5 to 15 percent
Rock fragment content—15 to 70 percent total, with 15 to 70 percent gravel and 0 to 5 percent cobbles
Durinode content—15 to 70 percent, weakly cemented or moderately cemented
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—0 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 12
Other features—thin strata of sand and gravel in some pedons; identifiable secondary carbonates as few or common filaments in matrix or as coatings on durinodes

Bq horizon
Value—5 or 6 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—loamy sand or loamy fine sand
Clay content—2 to 6 percent
Durinode content—5 to 15 percent
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 5

Ninemile Series

Depth class: Shallow
Drainage class: Well drained
Landscape: Lava plateaus and hills

Landform: Lava plateaus, hillslopes, and ridges
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, rhyolite, or welded tuff
Slope range: 0 to 35 percent
Elevation: 4,350 to 6,700 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey, smectitic, frigid Lithic Argixerolls

Typical Pedon

Ninemile gravelly loam in an area of rangeland, in map unit 483, Ninemile-Edemaps complex, 2 to 10 percent slopes; Lake County, Oregon; about 900 feet south and 1,800 feet west of the northeast corner of section 30, T. 25 S., R. 22 E.; U.S. Geological Survey Tired Horse Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 22 minutes, 54 seconds north and longitude 120 degrees, 7 minutes, 18 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; moderate thick and medium platy structure parting to moderate fine and very fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine and fine tubular pores; 13 percent gravel, 5 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.5); abrupt smooth boundary.
Bt1—2 to 7 inches; brown (10YR 5/3) cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common very fine tubular pores; 10 percent gravel and 10 percent cobbles; few faint clay films on faces of peds; slightly alkaline (pH 7.6); clear smooth boundary.
Bt2—7 to 17 inches; yellowish brown (10YR 5/4) cobbly clay, dark yellowish brown (10YR 4/4) moist; strong coarse subangular blocky structure; hard, firm, moderately sticky and very plastic; common very fine and few fine, medium, and coarse roots; common very fine tubular pores; 10 percent gravel and 10 percent cobbles; many distinct continuous clay films on faces of peds; slightly alkaline (pH 7.8); abrupt wavy boundary.
R—17 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 11 inches, may include part of the argillic horizon
Depth to bedrock: 17 to 19 inches
Particle-size control section: Clay content—35 to 50 percent; rock fragment content—0 to 35 percent
Reaction: Neutral or slightly alkaline

A horizon
Hue—10YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly loam, cobbly loam, very cobbly loam, very cobbly clay loam, or very stony silt loam
Clay content—10 to 30 percent
Rock fragment content—15 to 80 percent total, with 5 to 40 percent gravel, 0 to 40 percent cobbles, and 0 to 40 percent stones
Organic matter content—1 to 3 percent

Bt horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 to 5 moist
Chroma—3 or 4 dry or moist
Texture—clay, cobbly clay, gravelly clay, or cobbly clay loam
Clay content—35 to 50 percent
Rock fragment content—0 to 35 percent total, with 0 to 20 percent gravel, 0 to 20 percent cobbles, and 0 to 5 percent stones
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 5

Noidee Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Mixed eolian deposits and residuum derived from volcanic rock such as basalt
Slope range: 2 to 15 percent
Elevation: 4,380 to 6,000 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey, smectitic, frigid Lithic Xeric Natrargids

Typical Pedon

Noidee extremely stony fine sandy loam in an area of rangeland, in map unit 685, Yankeewell-Noidee complex, 2 to 10 percent slopes; Lake County, Oregon; 700 feet south and 1,100 feet east of the northwest corner of section 16, T. 31 S., R. 19 E.; U.S. Geological Survey Bull Lake 7.5-minute topographic quadrangle; latitude 42 degrees, 53 minutes, 24 seconds north and longitude 120 degrees, 29 minutes, 20 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; light brownish gray (10YR 6/2) extremely stony fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure parting to weak fine granular; slightly hard, friable, slightly sticky and moderately plastic; few fine roots; common very fine and fine tubular pores; 10 percent gravel, 30 percent cobbles, and 25 percent stones; strongly alkaline (pH 8.6); abrupt smooth boundary.

Btn1—2 to 5 inches; brown (10YR 5/3) clay, brown (10YR 4/3) moist; strong fine prismatic structure; very hard, firm, moderately sticky and moderately plastic; common fine roots; common very fine tubular pores; 5 percent gravel; few faint clay films on faces of peds; strongly alkaline (pH 8.8); clear smooth boundary.

Btn2—5 to 9 inches; light yellowish brown (10YR 6/4) sandy clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common fine roots; common very fine tubular pores; 5 percent gravel; common faint and few distinct clay films on faces of peds; strongly alkaline (pH 9.0); gradual smooth boundary.

Btkn—9 to 16 inches; light yellowish brown (10YR 6/4) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; common fine roots; common very fine tubular pores; few faint clay films on faces of peds; common fine soft concentrations of secondary carbonates throughout the matrix; strongly effervescent; very strongly alkaline (pH 9.4); abrupt wavy boundary.

2R—16 inches; fractured basalt.

Range in Characteristics

Depth to bedrock: 14 to 20 inches
Depth to abrupt textural change: 2 to 9 inches
Particle-size control section: Clay content—35 to 45 percent; rock fragment content—0 to 25 percent

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very stony fine sandy loam or extremely stony fine sandy loam
Clay content—8 to 16 percent
Rock fragment content—40 to 70 percent total, with 10 to 35 percent gravel, 10 to 30 percent cobbles, and 20 to 30 percent stones
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—2 to 10

A2 horizon (where present)
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—cobbly fine sandy loam, cobbly loam, or very stony fine sandy loam
Clay content—10 to 20 percent
Rock fragment content—20 to 40 percent total
Reaction—moderately alkaline or strongly alkaline

Btn1 horizon
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—clay, sandy clay, cobbly clay, or clay loam
Clay content—35 to 45 percent
Rock fragment content—0 to 25 percent total, with 0 to 15 percent gravel, 0 to 20 percent cobbles, and 0 to 10 percent stones
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 40

Btn2 and Btkn horizons
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—clay loam, clay, sandy clay loam, or cobbly clay loam
Clay content—25 to 45 percent
Rock fragment content—0 to 20 percent total, with 0 to 15 percent gravel, 0 to 20 percent cobbles, and 0 to 5 percent stones
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—20 to 60
Other feature—identifiable secondary carbonates as few or common, fine or medium masses on rock fragments and in matrix

Norcross Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Volcanic ash over residuum derived from volcanic rock such as basalt
Slope range: 1 to 15 percent
Elevation: 4,300 to 5,700 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey, smectitic, frigid, shallow Vitrandic Durixerolls

Typical Pedon

Norcross very cobbly ashy fine sandy loam in an area of rangeland, in map unit 286, Dunres-Norcross complex, 1 to 8 percent slopes; Lake County, Oregon; about 1,900 feet north and 1,600 feet west of the southeast corner of section 10, T. 29 S., R. 13 E.; U.S. Geological Survey Bridgecreek Draw 7.5-minute topographic quadrangle; latitude 43 degrees, 4 minutes, 9 seconds north and longitude 121 degrees, 9 minutes, 28 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly ashy fine sandy loam, dark brown (10YR 3/3) moist; strong thick platy structure parting to weak thin platy; hard, firm, slightly sticky and slightly plastic; common fine roots; common fine and few medium and coarse vesicular pores; 15 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear smooth boundary.

A2—3 to 6 inches; brown (10YR 5/3) cobbly ashy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to strong very coarse granular; soft, very friable, moderately sticky and moderately plastic; common fine roots; common fine vesicular pores; 12 percent gravel, 10 percent cobbles, and 2 percent stones; neutral (pH 7.2); abrupt smooth boundary.

2Bt1—6 to 13 inches; light brown (7.5YR 6/3) clay, dark brown (7.5YR 3/3) moist; moderate medium prismatic structure parting to strong medium subangular blocky; hard, firm, moderately sticky and moderately plastic; common fine roots; common very fine tubular pores; common distinct and few prominent clay films on faces of peds; slightly alkaline (pH 7.4); abrupt smooth boundary.

2Bt2—13 to 19 inches; light brown (7.5YR 6/4) clay, dark brown (7.5YR 3/4) moist; strong medium prismatic structure parting to strong medium and fine angular blocky; very hard, very firm, moderately sticky and very plastic; common very fine roots; common very fine tubular pores; many prominent clay films on faces of peds; slightly alkaline (pH 7.5); abrupt smooth boundary.

2Bqm—19 to 21 inches; pink (7.5YR 7/3) cemented material, brown (7.5YR 5/4) moist; strong medium platy structure; very rigid; brittle; indurated with secondary silica; volcanic ash coating on top of pan; slightly alkaline (pH 7.8); abrupt wavy boundary.

2R—21 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 15 inches
Depth to the duripan: 14 to 19 inches
Depth to bedrock: 16 to 21 inches

Particle-size control section: Clay content—45 to 55 percent; rock fragment content—0 to 10 percent
Reaction: Neutral or slightly alkaline

A1 horizon
Value—5 or 6 dry
Chroma—2 or 3 dry or moist
Texture—cobbly ashy loam, very cobbly ashy fine sandy loam, extremely cobbly ashy loam, cobbly ashy fine sandy loam, or gravelly ashy loam
Clay content—10 to 25 percent
Rock fragment content—15 to 80 percent total, with 0 to 35 percent gravel, 0 to 30 percent cobbles, and 0 to 30 percent stones
Organic matter content—2 to 4 percent

A2 horizon
Chroma—2 or 3 dry or moist
Texture—cobbly ashy loam or very cobbly ashy clay loam
Clay content—22 to 30 percent
Rock fragment content—20 to 45 percent total, with 10 to 25 percent gravel, 10 to 20 percent cobbles, and 0 to 10 percent stones
Organic matter content—1 to 3 percent

2Bt horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—clay or clay loam
Clay content—38 to 60 percent
Rock fragment content—0 to 10 percent total, with 0 to 10 percent gravel and 0 to 5 percent cobbles
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

2Bqm horizon
Cementation—indurated to strongly cemented

Nuss Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Permeability: Moderate
Landscape: Lava plateaus and hills
Landform: Lava plateaus, escarpments, hillslopes, and structural benches
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 1 to 50 percent
Elevation: 4,410 to 6,730 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic class: Loamy, mixed, superactive, frigid Lithic Haploxerolls

Typical pedon

Nuss gravelly loam in an area of rangeland, in map unit 568, Royst-Nuss complex, 2 to 30 percent slopes; Lake County, Oregon; about 5.5 miles south of Valley Falls;

in the southwest corner of the northwest corner of the northwest corner of section 31, T. 36 S., R. 21 E.; U.S. Geological Survey Valley Falls 7.5 minute topographic quadrangle; latitude 42 degrees, 24 minutes, 15.4 seconds north and longitude 120 degrees, 17 minutes, 42.5 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; very dark grayish brown (10YR 3/2) gravelly loam, brown (10YR 4/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common very fine tubular pores; 25 percent gravel, 2 percent cobbles, and 2 percent stones; neutral (pH 6.6); abrupt smooth boundary.

Bw—3 to 17 inches; very dark grayish brown (10YR 3/2) clay loam, brown (10YR 5/3) dry; moderate medium and fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; common very fine tubular pores; 10 percent gravel, 2 percent cobbles, and 2 percent stones; 5 percent pumiceous sand; slightly acid (pH 6.5); abrupt wavy boundary.

R—17 inches; welded tuff.

Range in Characteristics

Mollic epipedon thickness: 7 to 17 inches
Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—18 to 30 percent; rock fragment content—10 to 35 percent
Reaction: Slightly acid to slightly alkaline

A horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Clay content—8 to 25 percent
Rock fragment content—15 to 80 percent total, with 5 to 30 percent gravel, 0 to 20 percent cobbles, and 0 to 40 percent stones
Organic matter content—1 to 2 percent

Bw horizon
Value—4 to 6 dry, 2 to 4 moist
Chroma—2 to 4 dry or moist
Texture—loam, clay loam, gravelly loam, or cobbly loam
Clay content—20 to 35 percent
Rock fragment content—5 to 35 percent total, with 5 to 35 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones

Taxadjunct Features

The Nuss soil in map unit 284 is a taxadjunct to the Nuss series. This soil is classified as ashy-skeletal and glassy, and the Nuss series is classified as loamy and mixed. The Nuss soil in unit 284 has a paralithic contact at a shallow depth.

Oatmanflat Series

Depth class: Deep to a duripan
Drainage class: Well drained
Landscape: Basins and lava plateaus
Landform: Stream terraces and swales of lava plateaus
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt

Slope range: 0 to 5 percent
Elevation: 4,430 to 5,070 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Haploxerolls

Typical Pedon

Oatmanflat ashy loam in an area of rangeland, in map unit 600, Sliptrack-Oatmanflat complex, 0 to 4 percent slopes; Lake County, Oregon; about 255 feet south and 956 feet east of the northwest corner of section 24, T. 23 S., R. 18 E.; U.S. Geological Survey Last Chance Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 34 minutes, 19 seconds north and longitude 120 degrees, 30 minutes, 39 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) ashy loam, very dark grayish brown (10YR 3/2) moist; strong thick platy structure parting to weak thin platy; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 20 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized (0.25 to 2.00 millimeters) pumiceous ash grains; slightly alkaline (pH 7.6); abrupt smooth boundary.

A2—3 to 12 inches; brown (10YR 5/3) ashy sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; few very fine and fine and common medium tubular pores; 35 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized (0.25 to 2.00 millimeters) pumiceous ash grains; slightly alkaline (pH 7.5); clear smooth boundary.

Bw—12 to 28 inches; pale brown (10YR 6/3) ashy coarse sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; 50 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized (0.25 to 2.00 millimeters) pumiceous ash grains; distinct very thin laminae; slightly alkaline (pH 7.6); clear smooth boundary.

Btb—28 to 44 inches; brown (10YR 5/3) ashy clay loam, brown (10YR 4/3) moist; weak medium platy structure parting to moderate medium subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine tubular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.8); clear smooth boundary.

Btqb—44 to 53 inches; light yellowish brown (10YR 6/4) gravelly ashy sandy clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine tubular pores; 5 percent durinodes; common distinct clay films on faces of peds; 15 percent gravel and 2 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bqkmb—53 to 64 inches; very pale brown (10YR 8/3) cemented material, light yellowish brown (10YR 6/4) moist; strong very thick platy structure; extremely hard, slightly rigid; strongly cemented with secondary silica; secondary carbonates segregated as coatings on top of plates; moderately alkaline (pH 8.2).

Range in Characteristics

Mollic epipedon thickness: 7 to 12 inches
Depth to the duripan: 40 to 60 inches
Depth to bedrock: More than 60 inches

Particle-size control section: Clay content—12 to 24 percent; rock fragment content—0 to 5 percent

Other features: Volcanic glass content is 30 to 70 percent in the coarse silt to fine sand fractions. Some pedons have very gravelly substrata. Some areas are subject to rare periods of flooding in January and February.

A1 horizon
Value—5 or 6 dry
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam, ashy very fine sandy loam, or ashy fine sandy loam
Clay content—10 to 20 percent
Rock fragment content—0 to 10 percent gravel
Reaction—neutral or slightly alkaline
Organic matter content—1 to 3 percent
Other feature—20 to 50 percent medium to very coarse, sand-sized (0.25 to 2.00 millimeters) pumiceous ash grains

A2 horizon
Value—5 or 6 dry
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam or ashy sandy clay loam
Clay content—10 to 25 percent
Rock fragment content—0 to 10 percent gravel
Reaction—neutral or slightly alkaline
Organic matter content—1 to 3 percent
Other feature—20 to 50 percent medium to very coarse, sand-sized (0.25 to 2.00 millimeters) pumiceous ash grains

Bw horizon
Value—5 or 6 dry
Chroma—2 to 4 dry or moist
Texture—ashy sandy loam or ashy coarse sandy loam
Clay content—8 to 20 percent
Rock fragment content—0 to 10 percent gravel
Reaction—neutral or slightly alkaline
Other features—20 to 50 percent medium to very coarse, sand-sized (0.25 to 2.00 millimeters) pumiceous ash; thin alluvial stratification (rock structure) present as laminae of similar texture

Btb horizon
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—ashy fine sandy loam, ashy sandy clay loam, ashy clay loam, or ashy loam
Clay content—18 to 35 percent
Rock fragment content—0 to 10 percent gravel
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Btqb horizon
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—ashy fine sandy loam, gravelly ashy sandy clay loam, ashy clay loam, or ashy loam
Clay content—18 to 35 percent

Rock fragment content—0 to 30 percent total, with 0 to 25 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Old Camp Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Residuum and colluvium derived from volcanic rock such as basalt
Slope range: 2 to 50 percent
Elevation: 4,300 to 5,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Xeric Haplargids

Typical Pedon

Old Camp very cobbly loam, 2 to 15 percent slopes, in an area of rangeland, in map unit 495, Lake County, Oregon; about 2,200 feet south and 300 feet east of the northwest corner of section 36, T. 32 S., R. 19 E.; U.S. Geological Survey Sharp Top 7.5-minute topographic quadrangle; latitude 42 degrees, 45 minutes, 20 seconds north and longitude 120 degrees, 25 minutes, 58 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine and medium roots; many fine vesicular pores; 30 percent gravel, 20 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.8); gradual wavy boundary.
A2—2 to 5 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many fine interstitial and tubular pores; 30 percent gravel, 20 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.0); clear wavy boundary.
Bt—5 to 11 inches; pale brown (10YR 6/3) very cobbly sandy clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to weak fine angular blocky; hard, firm, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common fine interstitial and tubular pores; common faint and few distinct clay films on faces of peds and lining pores; 30 percent gravel, 20 percent cobbles, and 5 percent stones; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
Btk—11 to 15 inches; light yellowish brown (10YR 6/4) extremely cobbly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure parting to moderate medium angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common very fine and few fine pores; common faint continuous clay films on faces of peds and lining pores; 30 percent gravel, 25 percent cobbles, and 10 percent

stones; common thin carbonate masses on bottom of rock fragments; strongly effervescent; moderately alkaline (pH 8.2); abrupt irregular boundary.

R—15 inches; fractured basalt with 2-millimeter-thick discontinuous opal coating.

Range in Characteristics

Depth to bedrock: 13 to 20 inches
Particle-size control section: Clay content—22 to 35 percent; rock fragment content—50 to 75 percent
Reaction: Neutral to moderately alkaline

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loam
Clay content—10 to 25 percent
Rock fragment content—35 to 60 percent total, with 20 to 35 percent gravel, 15 to 30 percent cobbles, and 0 to 10 percent stones
Organic matter content—0.5 to 1.0 percent

Bt horizon
Hue—10YR or 7.5YR
Value—6 or 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—extremely cobbly sandy clay loam, very cobbly sandy clay loam, or extremely cobbly clay loam
Clay content—22 to 35 percent
Rock fragment content—50 to 75 percent total, with 0 to 20 percent stones, 10 to 35 percent gravel, and 30 to 60 percent cobbles
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Btk horizon
Hue—10YR or 7.5YR
Value—6 or 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—extremely cobbly sandy clay loam, very cobbly sandy clay loam, or extremely cobbly clay loam
Clay content—22 to 35 percent
Rock fragment content—50 to 75 percent total, with 0 to 20 percent stones, 10 to 35 percent gravel, and 30 to 60 percent cobbles
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 4

Oreneva Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 0 to 60 percent
Elevation: 4,350 to 5,540 feet
Mean annual precipitation: 8 to 13 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Xeric Haplocambids

Typical Pedon

Oreneva gravelly loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; in the southeast 1/4 of the southeast 1/4 of section 20, T. 41 S., R. 30 E.; U.S. Geological Survey Big Springs Butte 7.5-minute topographic quadrangle; latitude about 41 degrees, 59 minutes, 49 seconds north and longitude 119 degrees, 12 minutes, 20 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; moderate thick platy structure parting to moderate coarse subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common medium and fine roots; many very fine and fine irregular pores; 20 percent gravel; neutral (pH 6.8); clear smooth boundary.
Bw1—2 to 10 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, firm, moderately sticky and slightly plastic; common medium and fine roots; common very fine irregular pores; 5 percent gravel; neutral (pH 7.2); clear smooth boundary.
Bw2—10 to 21 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; slightly hard, firm, nonsticky and nonplastic; common fine roots; common very fine and fine irregular pores; 35 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.4); abrupt wavy boundary.
2R—21 inches; welded tuff.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—18 to 30 percent; rock fragment content—35 to 50 percent

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry, 3 moist
Texture—gravelly loam or cobbly fine sandy loam
Clay content—8 to 25 percent
Rock fragment content—15 to 35 percent total, with 10 to 35 percent gravel and 0 to 20 percent cobbles
Organic matter content—0.3 to 0.5 percent
Reaction—neutral or slightly alkaline

Bw1 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 dry or moist
Texture—loam or clay loam
Clay content—18 to 30 percent
Rock fragment content—0 to 15 percent total, with 0 to 15 percent gravel and 0 to 5 percent cobbles
Reaction—neutral or slightly alkaline

Bw2 horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—4 dry, 3 or 4 moist

Texture—very gravelly loam or very gravelly clay loam
Clay content—18 to 30 percent
Rock fragment content—35 to 50 percent total, with 35 to 50 percent gravel and 0 to 15 percent cobbles
Reaction—slightly alkaline or moderately alkaline

Osoll Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, andesite, or rhyolite with an influence of loess
Slope range: 20 to 50 percent
Elevation: 4,280 to 5,460 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic, shallow Typic Haplodurids

Typical Pedon

Osoll very cobbly fine sandy loam in an area of rangeland, in map unit 498, Osoll-Panlee-Rock outcrop complex, 20 to 50 percent slopes; Lake County, Oregon; about 600 feet north and 1,800 feet west of the southeast corner of section 25, T. 29 S., R. 23 E.; U.S. Geological Survey Alkali Buttes 7.5-minute topographic quadrangle; latitude 43 degrees, 1 minute, 13 seconds north and longitude 120 degrees, 3 minutes, 21 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; light brownish gray (10YR 6/2) very cobbly fine sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, nonsticky and slightly plastic; common very fine roots; common very fine and fine tubular pores; 30 percent gravel, 15 percent cobbles, and 5 percent stones; moderately alkaline (pH 7.8); abrupt smooth boundary.
Bw—4 to 8 inches; light gray (10YR 7/2) very cobbly coarse sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 25 percent gravel and 20 percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.
Bkq—8 to 12 inches; very pale brown (10YR 7/3) very cobbly coarse sandy loam, dark yellowish brown (10YR 4/6) moist; moderate very fine and fine subangular blocky structure; hard, firm, brittle, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; 25 percent gravel, 20 percent cobbles, and 5 percent stones; carbonate coatings on underside of some rock fragments; strongly alkaline (pH 8.8); abrupt smooth boundary.
Bkqm1—12 to 18 inches; yellow (10YR 8/8) and very dark brown (10YR 2/2) cemented material, yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) moist; massive; very strongly cemented with silica; extremely hard, extremely firm; many extremely coarse, extremely hard, irregular carbonate nodules; violently effervescent; strongly alkaline (pH 9.0); clear wavy boundary.
Bkqm2—18 to 27 inches; gray (N 6/0) cemented material; massive; indurated with silica; extremely hard, extremely firm; common fine and medium extremely hard,

irregular carbonate nodules; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.
R—27 inches; andesite.

Range in Characteristics

Depth to the duripan: 8 to 14 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—10 to 18 percent; rock fragment content—35 to 60 percent

A horizon
Value—6 or 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly fine sandy loam
Clay content—0 to 18 percent
Rock fragment content—35 to 60 percent total, with 15 to 45 percent gravel, 15 to 30 percent cobbles, and 0 to 10 percent stones
Organic matter content—0.5 to 1.0 percent
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bw horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly coarse sandy loam or very gravelly sandy loam
Clay content—10 to 18 percent
Rock fragment content—35 to 60 percent total, with 15 to 45 percent gravel, 15 to 30 percent cobbles, and 0 to 10 percent stones
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2
Other feature—Bw horizon not in some pedons

Bkq horizon
Value—6 or 7 dry, 3 to 5 moist
Chroma—3 to 6 dry or moist
Texture—very cobbly coarse sandy loam or very gravelly sandy loam
Clay content—10 to 18 percent
Rock fragment content—35 to 60 percent total, with 15 to 45 percent gravel, 15 to 30 percent cobbles, and 0 to 10 percent stones
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 2 percent
Salinity (electrical conductivity)—2 to 10 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 4

Overallflat Series

Depth class: Very deep to bedrock
Drainage class: Moderately well drained
Landscape: Basins
Landform: Lakebeds
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock

Slope range: 0 to 2 percent
Elevation: 4,400 to 4,670 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Aquic Paleargids

Typical Pedon

Overallflat ashy very fine sandy loam in an area of rangeland, in map unit 503, Overallflat, hummocky-Silverash complex, 0 to 2 percent slopes; Lake County, Oregon; about 2 miles east of the Stauffer Rim in Overall Flat; about 100 feet west and 10 feet north of the southeast corner of section 21, T. 24 S., R. 22 E.; U.S. Geological Survey Tired Horse Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 28 minutes, 10.1 seconds north and longitude 120 degrees, 4 minutes, 30.6 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

AE1—0 to 4 inches; light gray (10YR 7/1) ashy very fine sandy loam, dark grayish brown (2.5Y 4/2) moist; weak thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine and fine vesicular pores; rapid dilatency; common (4 percent) fine faint brown (10YR 4/3) masses of iron accumulation; slightly alkaline (pH 7.8); clear smooth boundary.

AE2—4 to 7 inches; light gray (10YR 7/1) ashy silt loam, dark grayish brown (2.5Y 4/2) moist; moderate thin platy structure; hard, friable, moderately sticky and slightly plastic; common very fine and fine roots; many very fine tubular and irregular roots; rapid dilatency; few (1 percent) fine prominent strong brown (7.5YR 5/6) and few fine faint brown (10YR 4/3) masses of iron accumulation; common (5 percent) fine faint very pale brown (10YR 8/2) silt coatings (skeletans) on faces of peds; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bt—7 to 14 inches; brown (10YR 4/3) ashy silty clay loam, olive brown (2.5Y 4/3) moist; strong fine and very fine angular blocky structure; hard, firm, very sticky and very plastic; common very fine and fine roots; common very fine tubular pores; common very pale brown (10YR 8/2) silt coatings (skeletans) on faces of peds; many distinct clay films on faces of peds and lining pores; slightly alkaline (pH 7.8); clear smooth boundary.

Bkq—14 to 26 inches; olive brown (2.5Y 4/3) ashy sandy clay loam, dark olive brown (2.5Y 3/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; many very fine interstitial pores and common very fine tubular pores; 25 percent very hard and brittle durinodes that do not slake; secondary carbonates segregated as white (10YR 8/1) filaments on faces of peds; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Cq1—26 to 39 inches; light yellowish brown (2.5Y 6/3) ashy fine sandy loam, olive brown (2.5Y 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; 20 percent of horizon is firm and brittle; few very fine roots; many very fine interstitial pores and few very fine tubular pores; common fine distinct light brown (7.5YR 6/4) relict masses of iron accumulation in matrix; moderately alkaline (pH 8.0); gradual smooth boundary.

Cq2—39 to 60 inches; light yellowish brown (2.5Y 6/3) ashy loamy fine sand, olive brown (2.5Y 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; 20 percent of horizon is firm and brittle; common very fine and fine roots; few very fine tubular pores; common fine distinct light brown (7.5YR 6/4) relict masses of iron accumulation in matrix; moderately alkaline (pH 8.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to argillic horizon: 6 to 9 inches
Particle-size control section: Clay content—30 to 45 percent
Volcanic glass content: 30 to 95 percent in coarse silt to fine sand fractions
Depth to water table: At the surface to a depth of 9 inches below the surface at some time during January through March (perched); as much as 6 inches above the surface during January through March (occasional ponding)
Aquic conditions: Occur seasonally from the soil surface to a depth of as much as 9 inches
Other feature: The AE horizon qualifies as albic material and an albic horizon.

AE1 horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry
Chroma—1 or 2 dry
Texture—ashy very fine sandy loam or ashy fine sandy loam
Clay content—12 to 18 percent
Organic matter content—0.3 to 0.5 percent
Redoximorphic features—common concentrations of iron and zones of clay or iron depletion (skeletans)

AE2 horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry
Chroma—1 or 2 dry
Texture—ashy silt loam
Clay content—20 to 25 percent
Organic matter content—0.1 to 0.3 percent
Redoximorphic features—common concentrations of iron and zones of clay or iron depletion (skeletans)

Bt horizon
Hue—10YR or 2.5Y
Value—4 to 6 dry, 4 or 5 moist
Chroma—2 or 3 moist
Texture—ashy silty clay loam, ashy clay loam, or ashy clay
Clay content—30 to 45 percent
Redoximorphic features—few or common zones of iron or clay depletion (skeletans) that may be superimposed on clay films in some pedons

Bkq horizon
Hue—10YR or 2.5Y
Value—4 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy clay loam
Clay content—20 to 34 percent
Durinode content—20 to 35 percent that are weakly cemented to strongly cemented
Reaction—slightly alkaline or moderately alkaline
Identifiable secondary carbonates—few filaments or coatings on faces of peds
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Cq horizon
Hue—10YR or 2.5Y
Value—4 to 6 dry, 3 to 6 moist

Chroma—2 or 3 dry or moist
Texture—ashy fine sandy loam, ashy loamy fine sand, ashy loamy sand, or very gravelly ashy sand
Clay content—5 to 10 percent
Rock fragment content—0 to 55 percent
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Redoximorphic features—few or common relict masses of iron accumulation
Other feature—10 to 30 percent of matrix is firm and brittle when moist and slakes in water

Ozamis Series

Depth class: Very deep to bedrock
Drainage class: Poorly drained
Landscape: Basins
Landform: Alluvial flats
Parent material: Lacustrine and alluvial deposits derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Elevation: 4,260 to 4,310 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Pedon

Ozamis silty clay loam in an area of rangeland; in the soil survey of Lake County, Oregon, Southern Part; about 2 miles southeast of Adel and 50 feet south of road in Warner Valley; about 1,200 feet east of the northwest corner of section 26, T. 39 S., R. 24 E.; U.S. Geological Survey Calderwood Reservoir 7.5-minute topographic quadrangle; latitude 42 degrees, 9 minutes, 58 seconds north and longitude 119 degrees, 51 minutes, 41 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

Ag—0 to 10 inches; black (10YR 2/1) silty clay loam, dark gray (N 4/0) dry; moderate thin platy structure and weak very fine granular; hard, firm, moderately sticky and moderately plastic; many very fine roots; few very fine tubular pores; moderately alkaline (pH 8.0); clear smooth boundary.
Cg1—10 to 20 inches; dark gray (10YR 4/1) silt loam, gray (N 6/0) dry; moderate very thin platy structure; hard, friable to firm, moderately sticky and slightly plastic; many very fine roots; few very fine tubular pores; many fine faint very dark gray (N 3/0) zones of iron depletion; slightly alkaline (pH 7.8); clear smooth boundary.
Cg2—20 to 34 inches; dark gray (10YR 4/1) silt loam, gray (N 6/0) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores; many fine faint very dark gray (N 3/0) zones of iron depletion; neutral (pH 7.3); abrupt smooth boundary.
2C—34 to 36 inches; very pale brown (10YR 7/3) ashy coarse sand, white (N 8/0) dry; single grain; loose, very friable, nonsticky and nonplastic; few very fine roots; many very fine irregular pores; neutral (pH 7.3); abrupt smooth boundary.
3Cg3—36 to 60 inches; dark gray (10YR 4/1) very fine sandy loam, gray (10YR 5/1) dry; massive; slightly hard, very friable, slightly sticky and nonplastic; few very fine

roots; few very fine tubular pores; many fine faint very dark gray (N 3/0) zones of iron depletion; neutral (pH 7.3).

Range in Characteristics

Mollic epipedon thickness: 10 to 15 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—25 to 35 percent by weighted average
Depth to water table: 12 to 48 inches below the surface at some time during March through June (apparent); rare periods of flooding during March through June; one phase has a water table at the surface from March through September (apparent) and as much as 6 inches above the surface (frequent ponding)
Other feature: Organic matter content decreases irregularly as depth increases.

Ag horizon
Hue—10YR, 2.5Y, 5Y, or neutral
Value—2 to 4 dry 2 moist
Chroma—0 to 2 dry or moist
Texture—loam or silty clay
Clay content—10 to 50 percent
Organic matter content—2 to 4 percent
Reaction—moderately alkaline
Salinity (electrical conductivity)—4 to 16 millimhos per centimeter

Cg horizon
Hue—10YR, 2.5Y, or 5Y
Value—5 to 8 dry, 4 to 6 moist
Chroma—1 or 2 dry or moist
Texture—silt loam, silty clay loam, clay loam, or silty clay
Clay content—25 to 45 percent
Rock fragment content—0 to 10 percent
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter

2C horizon (where present)
Hue—10YR, 2.5Y, or 5Y
Value—7 or 8 dry, 6 or 7 moist
Texture—ashy coarse sand
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

3Cg horizon
Hue—10YR, 2.5Y, or 5Y
Value—5 to 7 dry, 4 to 6 moist
Chroma—1 or 2 dry or moist
Texture—very fine sandy loam, loam, silty clay loam, silt loam, or sandy loam
Clay content—10 to 32 percent
Reaction—neutral to moderately alkaline
Salinity (electrical conductivity)—0 to 7 millimhos per centimeter

Note

The modal pedon was taken from the soil survey of Lake County, Oregon, Southern Part. It has a surface texture not representative of the range in characteristics for this survey area.

Pait Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Dissected lake terraces and strath terrace escarpments
Parent material: Colluvium over alluvium derived from volcanic rock such as basalt or tuff
Slope range: 5 to 30 percent
Elevation: 4,320 to 4,820 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Aridic Haploxerolls

Typical Pedon

Pait very cobbly loam, 5 to 30 percent slopes, in an area of rangeland, in map unit 506, Lake County, Oregon; about 2,000 feet west and 1,300 feet north of the southeast corner of section 6, T. 28 S., R. 23 E.; U.S. Geological Survey Goodrich Well 7.5-minute topographic quadrangle; latitude 43 degrees, 10 minutes, 1 second north and longitude 120 degrees, 2 minutes, 15 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; pale brown (10YR 6/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium and thick platy structure parting to weak very fine granular; soft, very friable, nonsticky and slightly plastic; few very fine roots; many very fine tubular pores; 20 percent gravel, 15 percent cobbles, 2 percent stones, and 2 percent boulders; slightly alkaline (pH 7.5); abrupt smooth boundary.

A2—3 to 16 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure parting to weak very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine, medium, and coarse roots; many very fine and fine tubular pores; 25 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.5); clear wavy boundary.

Bw—16 to 42 inches; pale brown (10YR 6/3) extremely stony sandy loam, dark yellowish brown (10YR 3/4) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and few fine, medium, and coarse roots; very few very fine tubular pores; 25 percent gravel, 20 percent cobbles, 25 percent stones, and 5 percent boulders; slightly alkaline (pH 7.6); clear wavy boundary.

2C1—42 to 55 inches; light brownish gray (10YR 6/2) extremely stony loamy sand, dark yellowish brown (10YR 3/4) moist; massive; hard, firm, nonsticky and nonplastic; common very fine and few fine roots; common very fine and fine tubular pores; 25 percent gravel, 15 percent cobbles, and 20 percent stones; strongly effervescent; slightly alkaline (pH 7.8); clear wavy boundary.

3C2—55 to 62 inches; light brownish gray (10YR 6/2) very stony sandy loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 25 percent gravel, 15 percent cobbles, and 15 percent stones; violently effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Mollic epipedon thickness: 7 to 16 inches (dark-colored minerals exhibit mollic color to a depth of 20 to 30 inches)
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—10 to 20 percent; rock fragment content—35 to 70 percent
Depth to carbonates: 40 to 55 inches (deposits of parent material)

A1 horizon
Value—4 to 6 dry, 3 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loam
Clay content—15 to 27 percent
Rock fragment content—35 to 60 percent total, with 10 to 35 percent gravel, 15 to 30 percent cobbles, 0 to 15 percent stones, and 0 to 5 percent boulders
Organic matter content—1 to 4 percent
Reaction—neutral or slightly alkaline

A2 horizon
Value—4 or 5 dry, 3 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loam, very gravelly sandy loam, or extremely gravelly loam
Clay content—15 to 27 percent
Rock fragment content—35 to 70 percent total, with 10 to 45 percent gravel, 10 to 30 percent cobbles, 0 to 15 percent stones, and 0 to 5 percent boulders
Organic matter content—1 to 4 percent
Reaction—neutral or slightly alkaline

Bw horizon
Value—3 moist, 5 or 6 dry
Chroma—3 or 4 dry or moist
Texture—very gravelly clay loam, extremely stony sandy loam, or extremely gravelly loam
Clay content—15 to 30 percent
Rock fragment content—35 to 80 percent total, with 25 to 55 percent gravel, 10 to 25 percent cobbles, 0 to 30 percent stones, and 0 to 5 percent boulders
Reaction—neutral or slightly alkaline

2C horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry, 3 or 4 moist
Texture—very gravelly sandy loam, extremely cobbly loamy sand, or extremely stony loamy sand
Clay content—3 to 20 percent
Rock fragment content—35 to 70 percent total, with 20 to 50 percent gravel, 5 to 30 percent cobbles, and 5 to 30 percent stones
Reaction—neutral or slightly alkaline
Calcium carbonate equivalent—1 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

3C horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry, 3 or 4 moist
Texture—very gravelly loamy sand, very cobbly sandy loam, or very stony sandy loam
Clay content—5 to 15 percent

Rock fragment content—35 to 60 percent total, with 15 to 45 percent gravel, 5 to 25 percent cobbles, and 5 to 25 percent stones
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Panlee Taxadjunct

Depth class: Deep to a duripan
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes and escarpments
Parent material: Colluvium and residuum derived from volcanic rock such as basalt, andesite, and rhyolite with an influence of loess
Slope range: 20 to 50 percent
Elevation: 4,280 to 5,460 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Sodic Petrocambids

Typical Pedon

Panlee gravelly very fine sandy loam in an area of rangeland, in map unit 498, Osoll-Panlee-Rock outcrop complex, 20 to 50 percent slopes; Lake County, Oregon; about 1,000 feet north and 1,100 feet west of the southeast corner of section 20, T. 29 S., R. 23 E.; Alkali Butte U.S. Geological Survey 7.5-minute topographic quadrangle; latitude 43 degrees, 2 minutes, 7 seconds north and longitude 120 degrees, 0 minutes, 52 seconds, west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly very fine sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to moderate very fine and fine granular; soft, very friable, nonsticky and slightly plastic; many very fine roots; few very fine vesicular pores; 15 percent gravel and 2 percent cobbles; slightly alkaline (pH 7.6); abrupt smooth boundary.
A2—3 to 8 inches; light brownish gray (10YR 6/2) gravelly very fine sandy loam, brown (10YR 4/3) moist; moderate very fine and fine subangular blocky structure parting to moderate very fine and fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; few very fine tubular pores; 15 percent gravel and 2 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.
Bk—8 to 22 inches; light brownish gray (10YR 6/2) very cobbly fine sandy loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; common very fine tubular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; few thin coatings of carbonates on rock fragments; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
Bknq1—22 to 41 inches; light gray (10YR 7/2) very cobbly fine sandy loam, brown (10YR 4/3) moist; weak very fine and fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine, common fine, and few medium roots; few very fine tubular pores; 15 percent weakly cemented durinodes; 25 percent gravel, 25 percent cobbles, and 5 percent stones; rock fragments

coated with carbonates on all sides; violently effervescent throughout; very strongly alkaline (pH 9.4); clear smooth boundary.

Bknq2—41 to 47 inches; very pale brown (10YR 7/3) very cobbly fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak very fine and fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and few fine and medium roots; few very fine tubular pores; 15 percent durinodes; 25 percent gravel and 20 percent cobbles; rock fragments coated with carbonates on all sides; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

Bknq3—47 to 54 inches; very pale brown (10YR 7/3) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; moderate very fine and fine subangular blocky structure; hard, firm, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; 30 percent gravel and 15 percent cobbles; rock fragments coated with carbonates on all sides; common 2- to 7-millimeter slightly hard silica and carbonate concentrations throughout; violently effervescent; very strongly alkaline (pH 9.6); abrupt wavy boundary.

Bkqm—54 to 61 inches; yellow (10YR 8/8) and black (10YR 2/1) indurated material, brownish yellow (10YR 6/6) and dark yellowish brown (10YR 4/6) moist; massive; extremely hard; many basalt fragments throughout; strongly effervescent throughout; very strongly alkaline (pH 9.6).

Range in Characteristics

Depth to the duripan: 40 to 60 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—10 to 18 percent; rock fragment content—35 to 60 percent
Depth to carbonates: 8 to 10 inches
Other feature: Some pedons have a Bw horizon.

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly very fine sandy loam
Clay content—8 to 16 percent
Rock fragment content—15 to 35 percent total, with 15 to 30 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2
Organic matter content—0.5 to 1.0 percent

Bk horizon
Value—6 or 7 dry, 4 to 6 moist
Chroma—3 or 4 dry or moist
Texture—very cobbly fine sandy loam
Clay content—8 to 16 percent
Rock fragment content—35 to 60 percent total, with 10 to 20 percent gravel, 15 to 35 percent cobbles, and 0 to 5 percent stones
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bknq horizon
Value—4 or 5 moist
Chroma—2 or 3 dry, 3 or 4 moist

Texture—very cobbly fine sandy loam, very cobbly sandy loam, or very gravelly sandy loam
Clay content—8 to 16 percent
Rock fragment content—35 to 60 percent total, with 15 to 30 percent gravel, 15 to 35 percent cobbles, and 0 to 5 percent stones
Reaction—strongly alkaline or very strongly alkaline
Calcium carbonate equivalent—0 to 4 percent
Salinity (electrical conductivity)—2 to 12 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 25

Bkqm horizon
Cementation—strongly cemented or indurated

Taxadjunct Features

The Panlee soil in map unit 498 is a taxadjunct to the Panlee series. This soil has more sodium than is typical for the modal concept for the Panlee series and meets the criteria for a Sodic subgroup.

Paulina Series

Depth class: Very deep to bedrock
Drainage class: Very poorly drained
Landscape: Basins
Landform: Lakebeds
Parent material: Alluvium derived from mixed volcanic rock and volcanic ash
Slope range: 0 to 1 percent
Elevation: 4,300 to 4,620 feet
Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 40 to 80 days

Taxonomic classification: Ashy, glassy, frigid Aquandic Endoaquolls

Typical Pedon

Paulina ashy mucky silt loam in an area of rangeland, in map unit 509, Paulina-Chinarise complex, 0 to 4 percent slopes; Lake County, Oregon; in Paulina Marsh, about 2.5 miles north-northeast of the community of Silver Lake; about 500 feet north and 250 feet east of the southwest corner of section 2, T. 28 S., R. 14 E.; U.S. Geological Survey Silver Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 9 minutes, 54.4 seconds north and longitude 121 degrees, 2 minutes, 0.8 second west; NAD 83. (Colors are for dry soil unless otherwise stated.)

Oe—0 to 1 inch; very dark grayish brown (10YR 3/2) moderately decomposed plant material, brown (10YR 4/3) dry; massive; soft, friable, slightly sticky and nonplastic; about 30 percent fibers after rubbing, consisting of dead roots and stems of grass and grasslike plants; many very fine roots; abrupt smooth boundary.
A1—1 to 3 inches; black (10YR 2/1) ashy mucky silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; many very fine and fine tubular pores; slightly alkaline (pH 7.8); abrupt smooth boundary.
A2—3 to 12 inches; black (10YR 2/1) ashy silty clay loam, gray (10YR 5/1) dry; moderate fine and medium granular structure; hard, firm, moderately sticky and moderately plastic; many very fine, fine, and medium roots; many very fine and fine tubular pores; slightly alkaline (pH 7.8); abrupt smooth boundary.

C1—12 to 18 inches; dark grayish brown (10YR 4/2) ashy loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; many fine and medium tubular pores; common fine faint brown (10YR 4/3) masses of iron accumulation; slightly alkaline (pH 7.6); gradual wavy boundary.

C2—18 to 25 inches; dark gray (10YR 4/1) ashy loam, light gray (10YR 7/1) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many fine and medium tubular pores; common fine distinct brown (10YR 4/3) masses of iron accumulation; slightly alkaline (pH 7.6); clear wavy boundary.

C3—25 to 53 inches; dark grayish brown (10YR 4/2) ashy very fine sandy loam, light gray (10YR 7/1) dry; massive; slightly hard, very friable, slightly sticky and nonplastic; few very fine, fine, and medium roots; common very fine and fine tubular pores; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; slightly alkaline (pH 7.6); clear wavy boundary.

C4—53 to 60 inches; dark grayish brown (10YR 4/2) ashy loam, white (10YR 8/1) dry; massive; hard, friable, slightly sticky and slightly plastic; few fine and medium roots; few fine tubular pores; many fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation and many fine prominent dark gray (N 4/0) zones of iron depletion; slightly alkaline (pH 7.6).

Range in Characteristics

Mollic epipedon thickness: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to water table: At the surface to a depth of 18 inches below the surface at some time during January through June (apparent) and to a depth of 40 inches during July through December; as high as 6 inches above the surface at some time in February and March (frequent ponding)
Particle-size control section: Clay content—18 to 30 percent
Reaction: Neutral or slightly alkaline

A horizon
Value—2 or 3 moist, 4 or 5 dry
Chroma—1 to 3 moist or dry
Texture—ashy mucky silt loam or ashy silty clay loam
Clay content—15 to 38 percent
Organic matter content—2 to 8 percent

C horizon
Value—3 to 5 moist, 6 to 8 moist
Chroma—1 or 2 moist or dry
Texture—ashy very fine sandy loam, ashy loam, ashy silty clay loam, very gravelly ashy loam, or very gravelly ashy very fine sandy loam
Clay content—8 to 32 percent
Rock fragment content—0 to 60 percent total, with 0 to 60 percent gravel and 0 to 15 percent cobbles
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Taxadjunct Features

The Paulina soil in map unit 289 is a taxadjunct to the Paulina series. This soil is classified as ashy-skeletal, subject to occasional flooding in February through June, and on flood plains.

Pearlwise Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as basalt
Slope range: 3 to 15 percent
Elevation: 4,890 to 5,910 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine-loamy, mixed, superactive, frigid Pachic Haploxerolls

Typical Pedon

Pearlwise clay loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; about 2,500 feet south and 1,200 feet east of the northwest corner of section 27, T. 39 S., R. 34 E.; U.S. Geological Survey Ladycomb Peak 7.5-minute topographic quadrangle; latitude and longitude data not available. (Colors are for dry soil unless otherwise stated.)

A1—0 to 6 inches; very dark grayish brown (10YR 3/2) clay loam, black (10YR 2/1) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine, fine, and medium roots; many very fine, fine, and medium tubular and irregular pores; 5 percent gravel; neutral (pH 7.0); gradual wavy boundary.
A2—6 to 22 inches; very dark grayish brown (10YR 3/2) clay loam, black (10YR 2/1) moist; weak medium subangular blocky structure; soft, very friable, sticky and plastic; many very fine, fine, and medium roots; many very fine, fine, and medium tubular and irregular pores; 5 percent gravel; neutral (pH 7.0); abrupt wavy boundary.
R—22 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 20 to 30 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—20 to 35 percent; rock fragment content—0 to 35 percent
Reaction: Neutral or slightly acid

A1 horizon
Chroma—1 or 2 dry or moist
Texture—clay loam
Clay content—20 to 30 percent
Rock fragment content—0 to 10 percent gravel
Organic matter content—1 to 3 percent

A2 horizon
Chroma—1 or 2 dry or moist
Texture—clay loam, loam, or gravelly clay loam
Clay content—20 to 35 percent
Rock fragment content—0 to 35 percent total, with 0 to 25 percent cobbles and 0 to 10 percent gravel
Organic matter content—1 to 3 percent

Pernty Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff, basalt, or rhyolite
Slope range: 2 to 50 percent
Elevation: 4,400 to 6,100 feet
Mean annual precipitation: 11 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Lithic Argixerolls

Typical Pedon

Pernty extremely stony loam in an area of rangeland, in map unit 514, Pernty-Glencabin-Rock outcrop complex, 15 to 45 percent slopes; Lake County, Oregon; about 1,800 feet north and 300 feet east of the southwest corner of section 4, T. 35 S., R. 22 E.; U.S. Geological Survey Lake Abert South 7.5-minute topographic quadrangle; latitude 42 degrees, 33 minutes, 38 seconds north and longitude 120 degrees, 8 minutes, 21 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; grayish brown (10YR 5/2) extremely stony loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common fine and medium tubular and interstitial pores; 25 percent gravel, 20 percent cobbles, and 20 percent stones; neutral (pH 7.0); clear smooth boundary.
Bt1—3 to 7 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine and medium tubular and interstitial pores; 15 percent gravel, 25 percent cobbles, and 10 percent stones; common faint continuous clay films on faces of peds; neutral (pH 7.2); abrupt smooth boundary.
Bt2—7 to 12 inches; yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 3/4) moist; strong medium subangular blocky structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and common fine and medium roots; common fine and medium tubular and interstitial pores; common faint and few distinct continuous clay films on faces of peds; 15 percent gravel, 25 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); abrupt smooth boundary.
R—12 inches; welded tuff.

Range in Characteristics

Mollic epipedon thickness: 7 to 10 inches
Depth to bedrock: 12 to 20 inches
Particle-size control section: Clay content—25 to 35 percent; rock fragment content—35 to 50 percent
Reaction: Neutral or slightly alkaline

A horizon
Chroma—2 or 3 dry or moist
Texture—gravelly sandy loam, gravelly silt loam, very stony sandy loam, or extremely stony loam

Clay content—8 to 25 percent
Rock fragment content—15 to 80 percent total, with 15 to 40 percent gravel, 0 to 25 percent cobbles, and 0 to 40 percent stones
Organic matter content—1 to 3 percent

Bt horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very cobbly clay loam or very cobbly loam
Clay content—25 to 35 percent
Rock fragment content—35 to 60 percent total, with 15 to 30 percent gravel, 20 to 35 percent cobbles, and 0 to 10 percent stones

Characteristics Outside Range of Series

Depth to bedrock: 12 to 14 inches

Taxadjunct Features

The Pernty soil in map unit 512 is a taxadjunct to the Pernty series. This soil is classified as ashy-skeletal, and the series is classified as loamy-skeletal. The depth to bedrock in this Pernty soil is 10 to 20 inches, and the depth to bedrock of the series is 12 to 20 inches.

Picturerock Series

Depth class: Very deep to bedrock
Drainage class: Moderately well drained
Landscape: Basins
Landform: Lake terraces
Parent material: Lacustrine deposits derived from pumiceous volcanic ash
Slope range: 1 to 3 percent
Elevation: 4,300 to 4,400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Haploxerolls

Typical Pedon

Picturerock ashy loam, 1 to 3 percent slopes; in an area of rangeland, in map unit 517, Lake County, Oregon; between Silver Lake and State Highway 31; about 1,000 feet north and 1,400 feet west of the southeast corner of section 32, T. 28 S., R. 16 E.; U.S. Geological Survey Egli Rim 7.5-minute topographic quadrangle; latitude 43 degrees, 5 minutes, 45.9 seconds north and longitude 120 degrees, 50 minutes, 38.6 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

Ak—0 to 3 inches; grayish brown (2.5Y 5/2) ashy loam, very dark grayish brown (10YR 3/2) moist; moderate very thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; few very fine tubular pores; strongly effervescent; secondary carbonates segregated as few fine irregularly shaped coatings on faces of peds; moderately alkaline (pH 8.0); clear smooth boundary.
Bk1—3 to 8 inches; grayish brown (2.5Y 5/2) ashy sandy clay loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure; slightly hard, firm, moderately sticky and slightly plastic; common very fine roots; common very fine and fine tubular pores; strongly effervescent; secondary carbonates segregated

as few fine irregularly shaped coatings on faces of peds and in filaments; strongly alkaline (pH 9.0); clear smooth boundary.

Bk2—8 to 11 inches; grayish brown (2.5Y 5/2) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and common fine roots; common very fine and fine tubular pores; 20 percent krotovinas; strongly effervescent; secondary carbonates segregated as few fine irregularly shaped coatings on faces of peds; strongly alkaline (pH 8.8); clear smooth boundary.

Bk3—11 to 18 inches; grayish brown (2.5Y 5/2) ashy sandy loam, dark grayish brown (2.5Y 4/2) moist; weak medium platy structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine to medium tubular pores; strongly effervescent; secondary carbonates segregated as few fine irregularly shaped coatings on faces of peds; strongly alkaline (pH 8.6); gradual smooth boundary.

Bk4—18 to 28 inches; light brownish gray (2.5Y 6/2) ashy sandy loam, dark grayish brown (2.5Y 4/2) moist; weak very thick platy structure parting to moderate coarse subangular blocky; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine to medium tubular pores; strongly effervescent; secondary carbonates segregated as few fine irregularly shaped coatings on faces of peds; strongly alkaline (pH 8.6); gradual smooth boundary.

Bk5—28 to 33 inches; light brownish gray (2.5Y 6/2) ashy loam, dark grayish brown (2.5Y 4/2) moist; weak medium prismatic structure; hard, firm, moderately sticky and slightly plastic; common very fine and fine roots; common very fine to medium tubular pores; strongly effervescent; secondary carbonates segregated as few fine irregularly shaped coatings on faces of peds; strongly alkaline (pH 8.6); gradual smooth boundary.

2Ck1—33 to 48 inches; brown (10YR 5/3) very paragravelly ashy loam, brown (10YR 4/3 and 10YR 5/3) moist; strong very fine angular rock structure; very hard, very firm, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine interstitial pores; few krotovinas; about 50 percent paragravel; strongly effervescent; secondary carbonates segregated as common white filaments on pararock fragments and in matrix; few fine faint pink (7.5YR 7/4) relict masses of iron accumulation; strongly alkaline (pH 8.6); gradual smooth boundary.

2Ck2—48 to 60 inches; grayish brown (2.5Y 5/2) very paragravelly ashy sandy clay loam, brown (10YR 4/3 and 10YR 5/3) moist; strong very fine angular rock structure; hard, very firm, slightly sticky and slightly plastic; common very fine roots; many very fine interstitial pores; about 50 percent paragravel; strongly effervescent; secondary carbonates segregated as common white filaments on pararock fragments and in matrix; strongly alkaline (pH 8.6).

Range in Characteristics

Mollic epipedon thickness: 7 to 11 inches
Particle-size control section: Clay content—18 to 27 percent by weighted average
Volcanic glass content: 75 to 100 percent in coarse silt to fine sand fractions
Reaction: Moderately alkaline or strongly alkaline
Depth to water table: At the surface to a depth of 8 inches below the surface in January through June (perched); as high as 12 inches above the surface in January through June (rare ponding)

Ak horizon
Hue—2.5Y or 10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist

Clay content—15 to 25 percent
Organic matter content—1 to 3 percent
Effervescence—slightly effervescent or strongly effervescent
Identifiable secondary carbonates—few fine filaments or coatings on faces of peds
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bk horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 or 4 moist
Chroma—1 to 3 dry or moist
Texture—ashy sandy loam, ashy loam, or ashy sandy clay loam
Clay content—12 to 30 percent
Effervescence—slightly effervescent or strongly effervescent
Identifiable secondary carbonates—few fine filaments or coatings on faces of peds
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter

2Ck horizon
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—very paragravelly ashy loam or very paragravelly ashy sandy clay loam
Clay content—18 to 27 percent
Pararock fragment content—35 to 60 percent paragravel, consisting of soft, consolidated lacustrine deposits
Effervescence—slightly effervescent or strongly effervescent
Identifiable secondary carbonates—few filaments in matrix and as coatings on pararock fragments
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter

Pitcheranch Series

Depth class: Very deep to bedrock
Drainage class: Poorly drained
Landscape: Basins
Landform: Lakebeds
Parent material: Alluvium derived from mixed volcanic rock, volcanic ash, and pumice
Slope range: 0 to 1 percent
Elevation: 4,300 to 4,350 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, nonacid, frigid Aquandic Endoaquepts

Typical Pedon

Pitcheranch ashy mucky silt loam in an area of pasture; in map unit 519, Pitcheranch-Chinarise complex, 0 to 4 percent slopes; Lake County, Oregon; in the western part of Paulina Marsh, about 4 miles northwest of the community of Silver Lake and along Buck Creek; 100 feet north and 2,200 feet east of the southwest corner of section 32, T. 27 S., R. 14 E.; U.S. Geological Survey Silver Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 10 minutes, 39.7 seconds north and longitude 121 degrees, 5 minutes, 4.9 seconds west; NAD 83. (Colors are for moist soil unless otherwise stated.)

A—0 to 2 inches; very dark grayish brown (10YR 3/2) ashy mucky silt loam, light gray (2.5Y 7/1) dry; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine interstitial and tubular pores; slightly alkaline (pH 7.8); clear smooth boundary.

Bw1—2 to 7 inches; very dark grayish brown (10YR 3/2) ashy loam, light gray (10YR 7/1) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine tubular pores; 20 percent light brownish gray (10YR 6/2), sand-sized (0.25 to 2.00 millimeters) pumice grains; slightly alkaline (pH 7.8); clear smooth boundary.

Bw2—7 to 19 inches; very dark gray (10YR 3/1) ashy loam, gray (10YR 6/1) dry; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular pores; 30 percent light brownish gray (10YR 6/2), sand-sized (0.25 to 2.00 millimeters) pumice grains; 5 percent fine pumice paragravel; slightly alkaline (pH 7.8); clear smooth boundary.

Bw3—19 to 30 inches; dark grayish brown (10YR 4/2) ashy sandy loam, light brownish gray (10YR 6/2) and light gray (10YR 7/1) dry; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common fine roots; many very fine tubular pores; 60 percent light brownish gray (10YR 6/2), sand-sized (0.25 to 2.00 millimeters) pumice grains; common fine faint dark brown (10YR 3/3) masses of iron accumulation and common fine faint dark gray (10YR 4/1) zones of iron depletion; slightly alkaline (pH 7.4); clear smooth boundary.

C—30 to 60 inches; dark grayish brown (10YR 4/2) ashy loamy sand, light brownish gray (10YR 6/2) and light gray (10YR 7/1) dry; massive; soft, very friable, nonsticky and nonplastic; few fine roots; many very fine interstitial pores; 80 percent light brownish gray (10YR 6/2), sand-sized (0.25 to 2.00 millimeters) pumice grains; slightly alkaline (pH 7.4).

Range in Characteristics

Depth to bedrock: More than 60 inches

Particle-size control section: Clay content—10 to 18 percent by weighted average; pararock content—0 to 5 percent fine pumice paragravel

Depth to water table: At the surface to a depth of 20 inches below the surface at some time in January through June (apparent); as high as 6 inches above the surface in January through June (frequent ponding)

Depth to aquic conditions: 0 to 20 inches

Volcanic glass content: 30 to 90 percent in coarse silt to very coarse sand fractions

A horizon

Hue—10YR or 2.5Y
Value—3 or 4 moist, 5 to 7 dry
Chroma—1 or 2 moist or dry
Texture—ashy mucky silt loam
Clay content—10 to 25 percent
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 3
Organic matter content—10 to 12 percent
Other features—slightly effervescent in thin subhorizons in some pedons

Bw horizon

Value—3 or 4 moist, 6 or 7 dry
Chroma—1 or 2 moist or dry

Texture—ashy loam, ashy sandy loam, or ashy fine sandy loam
Clay content—10 to 25 percent
Pararock content—0 to 5 percent pumice paragravel 2 to 5 millimeters in size
Reaction—slightly alkaline
Redoximorphic features—masses of iron accumulation in some subhorizons; depletions may also occur as zones of iron depletion

C horizon
Value—6 to 8 dry
Chroma—1 or 2 moist or dry
Texture—ashy loam, ashy loamy sand, ashy sandy loam, ashy fine sandy loam, or ashy loamy fine sand
Clay content—5 to 20 percent
Pararock content—0 to 5 percent pumice paragravel 2 to 5 millimeters in size
Reaction—slightly alkaline

Taxadjunct Features

The Pitcheranch soils in map units 363 and 518 are a taxadjunct to the Pitcheranch series. The soil in map unit 363 is classified as fine-loamy and is calcareous. The soil in map unit 518 is classified as fine-loamy, has a mollic epipedon that meets the criteria for the Cumulic subgroup, and is on flood plains.

Poorjug Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Pediments and lava plateaus
Parent material: Slope alluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 0 to 15 percent
Elevation: 4,350 to 5,340 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Xeric Haplocambids

Typical Pedon

Poorjug gravelly fine sandy loam in an area of rangeland, in map unit 541, Raz-Poorjug complex, 2 to 15 percent slopes; Lake County, Oregon; about 2,700 feet north and 800 feet west of the southeast corner of section 25, T. 32 S., R. 22 E.; U.S. Geological Survey Coleman Hills 7.5-minute topographic quadrangle; latitude 42 degrees, 46 minutes, 7 seconds north and longitude 120 degrees, 3 minutes, 50 seconds west; NAD 27.(Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; grayish brown (10YR 5/2) gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common fine irregular pores; 15 percent gravel, 5 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.
A2—2 to 5 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; moderate medium platy structure parting to weak medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots;

common fine tubular pores; 20 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bw—5 to 13 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; 15 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

Bk—13 to 19 inches; pale brown (10YR 6/3) very cobbly sandy loam, dark yellowish brown (10YR 4/4) moist; moderate thin platy structure; hard, friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; 20 percent gravel and 35 percent cobbles; secondary carbonates segregated as common coatings on bottom of rock fragments; moderately alkaline (pH 8.0); abrupt smooth boundary.

R—19 inches; fractured basalt; common discontinuous laminae of chalcedony on opal and carbonate coatings lining fractures.

Range in Characteristics

Depth to bedrock: 14 to 20 inches

Particle-size control section: Clay content—10 to 18 percent by weighted average; rock fragment content—35 to 50 percent by weighted average

A horizon

Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly fine sandy loam, gravelly loamy fine sand, or very gravelly sandy loam
Clay content—5 to 18 percent
Rock fragment content—15 to 60 percent total, with 15 to 50 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bw horizon

Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very cobbly loam, very cobbly sandy loam, very cobbly fine sandy loam, or very gravelly sandy loam
Clay content—10 to 25 percent
Rock fragment content—35 to 60 percent total, with 5 to 55 percent gravel, 0 to 35 percent cobbles, and 0 to 5 percent stones
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bk horizon

Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very cobbly loam, very cobbly sandy loam, very cobbly fine sandy loam, or very gravelly sandy loam
Clay content—10 to 25 percent
Rock fragment content—35 to 60 percent total, with 5 to 55 percent gravel, 0 to 35 percent cobbles, and 0 to 5 percent stones
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter

Sodicity (sodium adsorption ratio)—0 to 4
Identifiable secondary carbonates—occur as coatings on bottom of rock fragments

Taxadjunct Features

The Poorjug soils in map units 439 and 523 are a taxadjunct to the Poorjug series. These Poorjug soils are classified as fine-loamy, and the Poorjug series is classified as loamy-skeletal. This difference does not affect use and management.

Porterfield Taxadjunct

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Hills and lava plateaus
Landform: Hillslopes and side slopes of lava plateaus
Parent material: Colluvium derived from diatomaceous earth and lacustrine tuff
Slope range: 2 to 20 percent
Elevation: 4,460 to 4,890 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Ashy, glassy, calcareous, mesic, shallow Vitrandic Torriorthents

Typical Pedon

Porterfield very gravelly ashy fine sandy loam in an area of rangeland, in map unit 525, Porterfield-Rock outcrop complex, 2 to 20 percent slopes, Lake County, Oregon; about 2,100 feet east and 1,800 feet south of the northwest corner of section 18, T. 30 S., R. 21 E.; U.S. Geological Survey Diatomite Reservoir 7.5-minute topographic quadrangle; latitude 42 degrees, 58 minutes, 15 seconds north and longitude 120 degrees, 16 minutes, 41 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; light brownish gray (10YR 6/2) very gravelly ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium and thin platy structure; soft, very friable, nonsticky and slightly plastic; few very fine roots; many very fine and fine vesicular pores; 25 percent gravel, 5 percent cobbles, and 8 percent stones; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bk—2 to 9 inches; pale brown (10YR 6/3) gravelly ashy loam, dark yellowish brown (10YR 4/4) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; common very fine and few fine, medium, and coarse roots; common very fine tubular pores; 20 percent gravel, 2 percent cobbles, and 2 percent stones; disseminated secondary carbonates; slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Ck—9 to 12 inches; pale brown (10YR 6/3) gravelly ashy coarse sandy loam, dark yellowish brown (10YR 4/4) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine and medium roots; common very fine and fine tubular pores; 15 percent gravel; strongly effervescent; disseminated secondary carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

Cr—12 inches; very pale brown (10YR 8/2) diatomaceous earth and lacustrine tuff, yellowish brown (10YR 5/4) moist; massive; very hard, firm, nonsticky and nonplastic; violently effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to the paralithic contact: 12 to 20 inches
Particle-size control section: Clay content—18 to 30 percent; rock fragment content—5 to 30 percent
Reaction: Slightly alkaline or moderately alkaline

A horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly ashy fine sandy loam
Clay content—10 to 14 percent
Rock fragment content—35 to 50 percent total, with 25 to 40 percent gravel, 2 to 6 percent cobbles, and 2 to 8 percent stones
Organic matter content—0.1 to 0.5 percent

Bk horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—gravelly ashy loam or ashy loam
Clay content—20 to 25 percent
Rock fragment content—5 to 30 percent total, with 5 to 25 percent gravel, 0 to 5 percent cobbles, and 0 to 5 percent stones
Calcium carbonate equivalent—1 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Ck horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—gravelly ashy coarse sandy loam or ashy loam
Clay content—5 to 15 percent
Rock fragment content—5 to 30 percent total, with 0 to 25 percent gravel and 0 to 5 percent cobbles
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Taxadjunct Features

The Porterfield soils in this survey area are classified as calcareous, and the Porterfield series is classified as nonacid.

Puzzlebark Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Basins and lava plateaus
Landform: Structural benches
Parent material: Volcanic ash and slope alluvium derived from volcanic rock such as basaltic tuff or tuff breccia
Slope range: 0 to 5 percent
Elevation: 4,450 to 4,750 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid, shallow Vitrixerandic Haplodurids

Typical Pedon

Puzzlebark gravelly ashy fine sandy loam in an area of forestland; in map unit 527, Puzzlebark-Sandrock complex, 0 to 5 percent slopes; in the Lost Forest Research Natural Area northeast of Christmas Lake Valley; about 450 feet east and 1,200 feet north of the southwest corner of section 27, T. 25 S., R. 20 E.; U.S. Geological Survey Sand Rock 7.5-minute topographic quadrangle; latitude 43 degrees, 22 minutes, 22 seconds north and longitude 120 degrees, 18 minutes, 50 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; grayish brown (10YR 5/2) gravelly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many fine interstitial pores; 15 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bw—2 to 8 inches; light brownish gray (10YR 6/2) ashy sandy loam, dark grayish brown (10YR 4/2) moist; weak and moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bkq—8 to 14 inches; light gray (10YR 7/2) gravelly ashy sandy clay loam, yellowish brown (10YR 5/4) moist; moderate fine and medium subangular blocky structure; moderately hard, firm, slightly sticky and slightly plastic; few coarse and fine and common medium roots; common fine tubular pores; 20 percent gravel; coarse and very coarse sand grains, mainly pumiceous ash; few fine coatings of secondary silica on faces of peds; secondary carbonates segregated as few fine coatings on bottom of rock fragments; slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Bkqm1—14 to 17 inches; very pale brown (10YR 8/2) cemented material, light yellowish brown (10YR 6/4) moist; strong medium and thick platy structure; rigid; very strongly cemented with secondary silica; very few fine and medium roots between plates; secondary carbonates segregated as few fine coatings on faces of peds; violently effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bkqm2—17 to 21 inches; very pale brown (10YR 7/3) cemented material, light yellowish brown (10YR 6/4) moist; moderate and strong medium and thick platy structure; rigid; very strongly cemented with secondary silica; very few fine and medium roots between plates; secondary carbonates segregated as few fine coatings on faces of peds; violently effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.

2R—21 inches; basaltic tuff; few coatings of opal on upper surface of bedrock.

Range in Characteristics

Depth to the duripan: 11 to 16 inches
Depth to bedrock: 16 to 24 inches
Particle-size control section: Clay content—10 to 18 percent by weighted average; rock fragment content—0 to 25 percent
Volcanic glass content—40 to 60 percent in coarse silt to fine sand fractions in the A horizon; 60 to 80 percent in the Bw and Bkq horizons
Other feature: The soil surface has a discontinuous layer of undecomposed pine needles.

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist

Texture—ashy loamy sand or gravelly ashy fine sandy loam
Clay content—2 to 15 percent
Rock fragment content—0 to 25 percent total, with 0 to 25 percent gravel and 0 to 10 percent cobbles
Organic matter content—0.2 to 1.0 percent
Reaction—slightly alkaline

Bw horizon
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3 dry, 2 to 4 moist
Texture—ashy sandy loam or gravelly ashy sandy loam
Clay content—10 to 20 percent
Rock fragment content—0 to 20 percent total, with 0 to 20 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Effervescence—noneffervescent or slightly effervescent

Bqk horizon
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3 dry, 2 to 4 moist
Texture—gravelly ashy sandy clay loam, ashy sandy clay loam, gravelly ashy sandy loam, or ashy sandy loam
Clay content—10 to 25 percent
Rock fragment content—0 to 25 percent total, with 0 to 25 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—1 to 3 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bqkm horizon
Value—7 or 8 dry, 5 or 6 moist
Chroma—2 or 3 dry, 3 or 4 moist
Cementation—very strongly cemented or indurated
Effervescence—strongly effervescent or violently effervescent

Rabbitcreek Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Lake terraces
Parent material: Alluvium over lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 3 percent
Elevation: 4,000 to 4,900 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Haplocambids

Typical Pedon

Rabbitcreek very gravelly loam in an area of rangeland, in map unit 647, Turpin-Rabbitcreek complex, 0 to 3 percent slopes; Lake County, Oregon; east of

Rabbit Basin, in Warner Valley; about 700 feet south and 2,600 feet east of the northwest corner of section 4, T. 34 S., R. 25 E.; U.S. Geological Survey Rabbit Hills NE 7.5-minute topographic quadrangle; latitude 42 degrees, 39 minutes, 25 seconds north and longitude 119 degrees, 46 minutes, 26 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; light brownish gray (10YR 6/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common fine vesicular pores; 40 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

A2—3 to 7 inches; light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine irregular pores; 5 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bt—7 to 14 inches; brown (10YR 5/3) clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine and few medium roots; few fine irregular pores; common faint clay films on faces of peds; slightly alkaline (pH 7.8); clear smooth boundary.

Bk1—14 to 26 inches; 70 percent brown (10YR 5/3) and 30 percent light gray (10YR 7/2) loam, brown (10YR 4/3 and 5/3) moist; moderate medium and thick platy structure parting to moderate very thin angular blocky; hard, firm, moderately sticky and slightly plastic; few fine and medium roots; common fine irregular pores; secondary carbonates segregated as few fine masses; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

2Bk2—26 to 32 inches; pale yellow (2.5Y 7/4) paragravelly loam, light olive brown (2.5Y 5/4) moist; weak thin platy structure parting to moderate very thin angular blocky; hard, friable, moderately sticky and moderately plastic; few fine roots; few fine irregular pores; common fine relict masses of iron and manganese accumulation; 30 percent paragravel; secondary carbonates segregated as few medium masses; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2Bk3—32 to 40 inches; pale yellow (2.5Y 8/2) extremely paragravelly clay loam, light brownish gray (2.5Y 6/2) moist; angular blocky structure; very hard, very firm, moderately sticky and moderately plastic; few fine roots; few fine irregular pores; common fine relict masses of iron and manganese accumulation; 70 percent paragravel and 5 percent paracobbles; secondary carbonates segregated as common fine masses; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

2Ck1—40 to 50 inches; pale yellow (2.5Y 8/2) extremely paragravelly silt loam, light brownish gray (2.5Y 6/2) moist; angular blocky structure; extremely hard, extremely firm, moderately sticky and slightly plastic; very few fine roots between fragments; few fine irregular pores; few fine relict masses of iron and manganese accumulation; about 80 percent paragravel; secondary carbonates segregated as few medium coatings on pararock fragments; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

2Ck2—50 to 62 inches; light yellowish brown (2.5Y 6/4) extremely paragravelly silt loam, light olive brown (2.5Y 5/4) moist; angular blocky structure; extremely hard, extremely firm, moderately sticky and slightly plastic; very few fine roots between fragments; few fine irregular pores; common fine and medium relict masses of iron and manganese accumulation; about 85 to 90 percent paragravel; secondary carbonates segregated as few medium coatings on pararock fragments; strongly effervescent; moderately alkaline (pH 8.4)

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—18 to 30 percent; rock fragment content—0 to 10 percent, by weighted average, fragments that are mainly gravel-sized and are volcanic rock such as basalt or tuff
Depth to horizons that are more than 60 percent pararock fragments: 20 to 35 inches
Depth to secondary carbonates: 10 to 20 inches
Other features: Pararock fragments consist of weakly cemented silty lacustrine deposits that are highly fractured and are not root restrictive. The majority of these fragments are stable in water and do not slake after air-drying and soaking in water for at least 1 hour.

A1 horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly loam
Clay content—15 to 25 percent
Rock fragment content—35 to 50 percent gravel
Organic matter content—0.2 to 0.5 percent
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

A2 horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—loam
Clay content—15 to 25 percent
Rock fragment content—0 to 10 percent gravel
Organic matter content—0.2 to 0.5 percent
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bt horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—clay loam or loam
Clay content—18 to 30 percent
Rock fragment content—0 to 10 percent gravel
Pararock fragment content—0 to 15 percent paragravel
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Other features—evidence of illuvial clay in Bt horizon; horizon does not have required clay increase needed to qualify as argillic horizon

Bk horizon
Texture—loam, clay loam, sandy clay loam, or sandy loam
Clay content—18 to 30 percent
Rock fragment content—0 to 10 percent gravel
Pararock fragment content—0 to 15 percent paragravel
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—3 to 5 percent
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 13
Effervescence—slightly effervescent or strongly effervescent

2Bk horizon
Value—7 or 8 dry, 5 or 6 moist
Texture—extremely paragravelly loam, extremely paragravelly clay loam, extremely paragravelly sandy clay loam, or extremely paragravelly sandy loam
Clay content—18 to 30 percent
Rock fragment content—0 to 10 percent gravel
Pararock fragment content—30 to 85 percent paragravel and 0 to 5 percent paracobbles
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—3 to 5 percent
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 13
Effervescence—slightly effervescent or strongly effervescent
Other feature—upper part of 2Bk horizon is paragravelly loam in some pedons

2Ck horizon
Value—6 to 8 dry, 4 to 6 moist
Texture—extremely paragravelly silt loam or extremely paragravelly loam
Clay content—18 to 25 percent
Rock fragment content—0 to 10 percent gravel
Pararock fragment content—80 to 90 percent, mainly paragravel
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—3 to 5 percent
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 13
Effervescence—slightly effervescent or strongly effervescent

Rabbithills Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Basins
Landform: Fan remnants and lake terraces
Parent material: Alluvium and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 15 percent
Elevation: 4,300 to 4,950 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy, mixed, superactive, mesic, shallow Xereptic Haplodurids

Typical Pedon

Rabbithills gravelly sand in an area of rangeland, in map unit 529, Rabbithills complex, basin, 0 to 10 percent slopes; Lake County, Oregon; about 900 feet south and 700 feet west of the northeast corner of section 6, T. 34 S., R. 25 E.; U.S. Geological Survey Rabbit Hills NE 7.5-minute topographic quadrangle; latitude 42 degrees, 39 minutes, 18 seconds north and longitude 119 degrees, 48 minutes, 21 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 4/3) gravelly sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and few fine roots;

many very fine interstitial pores; slightly effervescent; 30 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

A2—3 to 5 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; slightly hard, very friable, moderately sticky and moderately plastic; common fine roots; common fine vesicular pores; slightly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bq—5 to 12 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; strong medium and thin platy structure; hard, very firm and brittle; common fine and few medium roots; few fine interstitial pores; common fine slightly hard platy iron concentrations on faces of peds; common distinct discontinuous silt coatings; weakly cemented with secondary silica; 10 percent gravel; strongly effervescent; slightly alkaline (pH 7.8); gradual smooth boundary.

Bqm—12 to 18 inches; pale brown (10YR 6/3) cemented fine sandy loam, brown (10YR 4/3) moist; massive; very hard, firm and brittle; strongly cemented with secondary silica; few fine and medium roots; few fine interstitial pores; common fine slightly hard iron concentrations throughout; common distinct discontinuous silt coatings; slightly alkaline (pH 7.8); clear smooth boundary.

Bkqm—18 to 22 inches; light brownish gray (2.5Y 6/2), cemented fine sandy loam, olive brown (2.5Y 4/3) moist; massive; hard, friable, moderately sticky and moderately plastic; few fine roots; few fine interstitial pores; 5 percent gravel; strongly cemented with secondary silica; common fine and medium soft platy carbonate salt concentrations throughout; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2BCk—22 to 26 inches; light gray (2.5Y 7/2) loam, olive brown (2.5Y 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; few fine interstitial pores; common fine and medium soft irregular carbonate salt concentrations throughout; 5 percent gravel; slightly effervescent; strongly alkaline (pH 8.6); gradual smooth boundary.

2C—26 to 40 inches; light gray (2.5Y 7/2) loam, olive brown (2.5Y 4/4) moist; moderate fine angular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine roots; few fine interstitial pores; few fine slightly hard irregular dark masses throughout; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

2Cr—40 to 60 inches; light yellowish brown (2.5Y 6/3) siltstone, olive brown (2.5Y 4/3) moist; moderate medium angular blocky structure; very hard, very firm; weakly cemented lacustrine deposits; very few fine roots; few fine interstitial pores; few fine slightly hard irregular dark masses of manganese accumulations; slightly effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Depth to the duripan: 12 to 16 inches
Depth to bedrock: 40 to 60 inches
Particle-size control section: Clay content—5 to 15 percent by weighted average; rock fragment content—0 to 25 percent by weighted average

A1 horizon
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly sand, gravelly sandy loam, gravelly loam, gravelly loamy fine sand, very gravelly loamy sand, gravelly fine sandy loam, or sand
Clay content—2 to 15 percent

Rock fragment content—0 to 60 percent total, with 0 to 50 percent gravel and 0 to 10 percent cobbles
Organic matter content—0.2 to 0.6 percent
Reaction—slightly alkaline

A2 and Bq horizons
Value—5 or 6 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—fine sandy loam, sandy loam, or loam
Clay content—5 to 16 percent
Rock fragment content—0 to 10 percent gravel
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bqm and Bkqm horizons
Texture—cemented fine sandy loam or cemented loam
Cementation—strongly cemented
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—0 to 4 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

2BC and 2C horizons
Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 to 6 moist
Chroma—2 to 4 dry or moist
Texture—loam, sandy loam, loamy sand, clay loam, gravelly sandy loam, or gravelly loamy sand
Clay content—2 to 30 percent
Rock fragment content—0 to 30 percent gravel
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—2 to 10 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 5

Taxadjunct Features

The Rabbithills soil in map unit 532 is a taxadjunct to the Rabbithills series because it has a frigid soil temperature regime.

Ratto Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus and basins
Landform: Lava plateaus and fan remnants
Parent material: Alluvium and colluvium derived from volcanic rock such as basalt or tuff
Slope range: 2 to 15 percent
Elevation: 5,050 to 5,750 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey, smectitic, frigid, shallow Xeric Argidurids

Typical Pedon

Ratto very cobbly loam in an area of rangeland; in the soil survey of Lake County, Oregon, Southern Part; in the northwest corner of the northwest corner of the northwest corner of section 23, T. 34 S., R. 27 E.; U.S. Geological Survey Flook Lake 7.5-minute topographical quadrangle; latitude 42 degrees, 37 minutes, 5 seconds north and longitude 119 degrees, 31 minutes, 12 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and medium roots; many very fine and fine vesicular pores; 30 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 6.6); abrupt smooth boundary.

AB—3 to 6 inches; grayish brown (10YR 5/2) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, friable, moderately sticky and slightly plastic; many very fine and fine roots; few very fine interstitial pores; 20 percent gravel and 5 percent cobbles; neutral (pH 6.6); abrupt smooth boundary.

Bt1—6 to 9 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; many very fine and fine roots; few fine interstitial pores; 20 percent gravel and 5 percent cobbles; common faint clay films on faces of peds and lining pores; neutral (pH 6.6); abrupt smooth boundary.

Bt2—9 to 13 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate very fine and medium angular blocky structure parting to moderate fine prismatic; slightly hard, firm, moderately sticky and moderately plastic; many very fine and fine roots; few very fine interstitial pores; 10 percent gravel; many distinct clay films lining pores and on faces of peds; moderately alkaline (pH 7.9); abrupt smooth boundary.

Bk—13 to 15 inches; light brownish gray (10YR 6/2) gravelly clay loam, brown (10YR 4/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine roots; few very fine interstitial pores; 30 percent gravel, most of which is less than 1/4 inch in diameter; strongly effervescent; secondary carbonates segregated in many fine irregularly shaped seams and filaments; strongly alkaline (pH 8.5); abrupt irregular boundary.

2Bkqm—15 to 19 inches; cemented material; massive; very gravelly alluvium indurated by opaline silica; abrupt wavy boundary.

2Bk—19 to 60 inches; light gray (10YR 7/2) gravelly loamy sand, light brownish gray (10YR 6/2) moist; single grain; loose, nonsticky and nonplastic; 30 percent gravel, most of which is less than 1/4 inch in diameter; strongly effervescent; secondary carbonates segregated in many fine irregularly shaped seams and filaments; violently effervescent; strongly alkaline (pH 8.5).

Range in Characteristics

Depth to the duripan: 12 to 20 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—35 to 45 percent; rock fragment content—5 to 30 percent

A horizon
Value—6 or 7 dry
Chroma—2 or 3 dry or moist
Texture—very cobbly loam

Clay content—14 to 22 percent
Rock fragment content—35 to 55 percent total, with 20 to 30 percent gravel, 15 to 25 percent cobbles, and 0 to 5 percent stones
Organic matter content—0.5 to 1.0 percent

AB and Bt1 horizons
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—clay loam or gravelly clay loam
Clay content—27 to 35 percent
Rock fragment content—10 to 30 percent total, with 10 to 30 percent gravel and 0 to 5 percent cobbles
Reaction—neutral or slightly alkaline

Bt2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—clay loam, gravelly clay loam, or clay
Clay content—35 to 45 percent
Rock fragment content—5 to 30 percent total, with 5 to 30 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

2Bk horizon
Texture—gravelly loamy sand or very gravelly loamy sand
Clay content—5 to 10 percent
Rock fragment content—15 to 45 percent total, with 15 to 45 percent gravel and 0 to 5 percent cobbles
Reaction—strongly alkaline
Calcium carbonate equivalent—3 to 6 percent
Salinity (electrical conductivity)—0 to 6 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 10

Raz Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Slope alluvium, colluvium, and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 1 to 20 percent
Elevation: 4,320 to 5,870 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy, mixed, superactive, frigid, shallow Xeric Haplodurids

Typical Pedon

Raz gravelly sandy loam in an area of rangeland, in map unit 542, Raz-Reallis association, 1 to 4 percent slopes; Lake County, Oregon; about 1,600 feet west and 400 feet north of the southeast corner of section 31, T. 26 S., R. 22 E.; U.S. Geological

Survey Ram’s Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 16 minutes, 7 seconds north and longitude 120 degrees, 7 minutes, 9 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate thick and medium platy structure parting to moderate very fine and fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine and fine tubular pores; 15 percent gravel and 2 percent cobbles; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bw—4 to 12 inches; pale brown (10YR 6/3) sandy clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine tubular pores; 10 percent gravel and 1 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

Bq—12 to 17 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 3/4) moist; weak thick platy structure; hard, firm and brittle, slightly sticky and slightly plastic; common very fine and few fine, medium, and coarse roots; common very fine and fine tubular pores; 10 percent gravel and 1 percent cobbles; weakly cemented by silicates; slightly alkaline (pH 7.7); abrupt wavy boundary.

Bkqm—17 to 30 inches; duripan strongly cemented with silicates; strongly effervescent; abrupt wavy boundary.

2R—30 inches; welded tuff.

Range in Characteristics

Depth to the duripan: 10 to 18 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—18 to 30 percent by weighted average; rock fragment content—10 to 25 percent by weighted average

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Clay content—4 to 25 percent
Rock fragment content—15 to 60 percent total, with 10 to 45 percent gravel and 0 to 30 percent cobbles
Organic matter content—0.3 to 0.5 percent
Reaction—slightly alkaline

Bw horizon
Value—6 or 7 dry, 4 to 6 moist
Chroma—2 to 6 dry, 3 to 6 moist
Texture—sandy clay loam, gravelly clay loam, gravelly loam, loam, or clay loam
Clay content—20 to 30 percent
Rock fragment content—5 to 25 percent total, with 5 to 25 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline

Bq horizon
Value—6 or 7 dry, 4 to 6 moist
Chroma—2 to 6 dry, 3 to 6 moist
Texture—sandy loam, gravelly clay loam, gravelly loam, loam, or clay loam
Clay content—12 to 30 percent
Rock fragment content—5 to 25 percent total, with 5 to 25 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline or moderately alkaline

Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Raztack Series

Depth class: Deep to a duripan
Drainage class: Moderately well drained
Landscape: Basins
Landform: Lakebeds
Parent material: Volcanic ash and lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 1 percent
Elevation: 4,550 to 4,750 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Vitrandic Palexeralfs

Typical Pedon

Raztack ashy loam in an area of rangeland, in map unit 543, Raztack-Silverash-Embal complex, 0 to 1 percent slopes; Lake County, Oregon; about 1,400 feet south and 800 feet west of the northeast corner of section 3, T. 24 S., R. 21 E.; U.S. Geological Survey Potato Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 31 minutes, 18 seconds north and longitude 120 degrees, 10 minutes, 41 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; light brownish gray (10YR 6/2) ashy loam, dark grayish brown (10YR 4/2) moist; strong thick platy structure parting to weak thin platy; slightly hard, very friable, slightly sticky and nonplastic; many very fine, common fine, and few medium roots; many very fine, common fine, and few medium vesicular pores; neutral (pH 7.2); clear smooth boundary.

A2—4 to 9 inches; light brownish gray (10YR 6/2) ashy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to strong medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and few fine and medium interstitial and tubular pores; neutral (pH 7.2); clear smooth boundary.

Bt1—9 to 14 inches; light brownish gray (10YR 6/2) ashy clay loam, dark grayish brown (10YR 4/2) moist; strong medium subangular blocky structure parting to moderate fine angular blocky; slightly hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; common very fine and fine and few medium tubular pores; common faint clay films on faces of peds; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bt2—14 to 23 inches; pale brown (10YR 6/3) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, firm, moderately sticky and very plastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.6); clear smooth boundary.

Bt3—23 to 33 inches; pale brown (10YR 6/3) clay, brown (10YR 4/3) moist; moderate medium prismatic structure parting to strong medium angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine tubular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.6); clear smooth boundary.

Bt4—33 to 38 inches; light gray (10YR 7/2) clay loam, brown (10YR 5/3) moist; strong fine subangular blocky structure; hard, firm, slightly sticky and moderately plastic; few very fine and fine roots; few very fine and fine tubular pores; common faint clay films on faces of peds; slightly alkaline (pH 7.8); clear smooth boundary.

Bt5—38 to 44 inches; very pale brown (10YR 7/3) sandy clay loam, yellowish brown (10YR 5/4) moist; strong fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; common very fine tubular pores and many very fine interstitial pores; common faint clay films on faces of peds; slightly alkaline (pH 7.8); abrupt smooth boundary.

2Bqm—44 to 50 inches; light brownish gray (10YR 6/2), cemented loamy sand, brown (10YR 4/3) moist; weak very coarse prismatic structure parting to moderate thick platy; extremely hard, extremely firm; 75 percent of horizon is very weakly cemented or weakly cemented with secondary silica; few very fine roots in fractures; 25 percent of horizon is noncemented loamy sand; few fine distinct light yellowish brown (10YR 6/4) and brown (7.5YR 4/4) irregular masses of iron accumulation; secondary silica coatings 1 millimeter thick on top of plates; slightly alkaline (pH 7.8); abrupt smooth boundary.

2C—50 to 70 inches; stratified, light yellowish brown (10YR 6/4) loamy sand, dark yellowish brown (10YR 4/4) moist, and light brownish gray (10YR 6/2) clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure parting to weak fine angular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation; slightly alkaline (pH 7.8).

Range in Characteristics

Depth to the duripan: 40 to 60 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—35 to 45 percent by weighted average
Depth to water table: At a depth of 40 to 60 inches below the surface (apparent) in February through April; at the surface to a depth of 6 inches below the surface (perched) at some time during February through April; as high as 4 inches above the surface in February through April (frequent ponding)

A1 horizon
Value—3 or 4 moist
Chroma—2 or 3 moist
Texture—ashy loam or ashy very fine sandy loam
Clay content—5 to 18 percent
Rock fragment content—0 to 2 percent gravel
Reaction—neutral

A2 horizon
Value—3 or 4 moist
Chroma—2 or 3 moist
Texture—ashy loam
Clay content—20 to 25 percent
Rock fragment content—0 to 2 percent gravel
Volcanic glass content—60 to 80 percent in the coarse silt to fine sand fractions
Reaction—neutral
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bt1 horizon
Texture—ashy clay loam
Clay content—27 to 35 percent
Rock fragment content—0 to 2 percent gravel
Volcanic glass content—30 to 60 percent in the coarse silt to fine sand fractions

Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bt2 and Bt3 horizons
Texture—clay
Clay content—42 to 58 percent
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bt4 and Bt5 horizons
Texture—clay loam or sandy clay loam
Clay content—20 to 40 percent
Rock fragment content—0 to 5 percent gravel
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

2Bqm horizon
Texture—cemented loamy sand or cemented sandy loam
Clay content—6 to 15 percent
Rock fragment content—0 to 2 percent gravel
Cementation—very weakly cemented or weakly cemented
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

2C horizon
Chroma—2 to 4 dry or moist
Texture—stratified loamy sand to clay loam
Clay content—6 to 35 percent, with a weighted average of 10 to 20 percent
Rock fragment content—0 to 10 percent gravel
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 4

Reallis Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Alluvial fans and lake terraces
Parent material: Alluvium derived from mixed volcanic rock with an influence of eolian material
Slope range: 0 to 6 percent
Elevation: 4,450 to 5,650 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Durinodic Xeric Haplocambids

Typical Pedon

Reallis sandy loam in an area of rangeland, in map unit 546, Reallis complex, 0 to 4 percent slopes; Lake County, Oregon; about 100 feet south and 1,900 feet east of the northwest corner of section 8, T. 31 S., R. 20 E.; U.S. Geological Survey Bull Lake 7.5-minute topographic quadrangle; latitude 42 degrees, 54 minutes, 24 seconds north and longitude 120 degrees, 23 minutes, 12 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; light brownish gray (10YR 6/2) sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to weak fine granular; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; slightly alkaline (pH 7.8); clear smooth boundary.

Bw—4 to 10 inches; grayish brown (10YR 5/2) sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure; slightly hard, very friable, moderately sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; slightly alkaline (pH 7.8); gradual smooth boundary.

Bq—10 to 16 inches; pale brown (10YR 6/3) sandy loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; very hard, firm and brittle; common fine and very fine roots; many very fine interstitial pores; moderately alkaline (pH 8.4); clear smooth boundary.

Bkq1—16 to 29 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; weak thin platy structure; very hard, firm and brittle; common very fine roots; many very fine interstitial pores; 5 percent durinodes; secondary carbonates segregated as few fine threads; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bkq2—29 to 44 inches; pale brown (10YR 6/3) loamy fine sand, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores and few fine tubular pores; 5 percent durinodes; secondary carbonates segregated as few fine threads; strongly effervescent; strongly alkaline (pH 8.6); gradual smooth boundary.

Bk—44 to 60 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine tubular pores; secondary carbonates segregated as few fine threads; strongly effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to horizon with firm, brittle matrix: 10 to 35 inches
Depth to secondary carbonates: 16 to 35 inches
Particle-size control section: Clay content—5 to 15 percent; rock fragment content—0 to 10 percent gravel by weighted average

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—sandy loam, gravelly loamy sand, fine sandy loam, or loamy sand
Clay content—4 to 10 percent
Organic matter content—0.3 to 0.5 percent

Bw horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—sandy loam
Clay content—8 to 12 percent

Bq horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Clay content—5 to 12 percent
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Durinodes (where present)—5 to 20 percent
Other features—firm and brittle when moist in some pedons

Bkq1 horizon
Value—5 to 7 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Texture—sandy loam or fine sandy loam
Clay content—5 to 15 percent
Rock fragment content—0 to 10 percent gravel
Durinodes—5 to 50 percent
Consistence—moderately hard or hard when dry, firm or very firm and brittle when moist
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 or 2 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Identifiable secondary carbonates (where present)—few or common fine masses

Bkq2 horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—gravelly sandy loam, gravelly loamy sand, loamy sand, loamy fine sand, or sandy loam
Clay content—5 to 15 percent
Rock fragment content—0 to 25 percent gravel
Durinodes—5 to 50 percent
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 5 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Identifiable secondary carbonates (where present)—few or common fine masses or coatings on durinodes

Bk horizon
Hue—10YR or 2.5Y
Value—2 to 7 dry, 2 to 5 moist
Chroma—1 to 4 dry or moist
Texture—gravelly sandy loam, gravelly loamy sand, loamy sand, sandy loam, or loam
Clay content—5 to 15 percent
Rock fragment content—0 to 25 percent gravel
Reaction—moderately alkaline
Calcium carbonate equivalent—1 or 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Redcanyon Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Colluvium derived from volcanic rock such as basalt or welded tuff
Slope range: 30 to 50 percent
Elevation: 4,500 to 4,760 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls

Typical Pedon

Redcanyon extremely bouldery loam in an area of rangeland; in the soil survey of Lake County, Oregon, Southern Part; about 2 miles northwest of Valley Falls; in the southeast corner of the northwest corner of the southeast corner of section 22, T. 35 S., R. 20 E.; U.S. Geological Survey Coglan Buttes SE 7.5-minute topographic quadrangle; latitude and longitude data not available. (Colors are for dry soil unless otherwise stated.)

A—0 to 8 inches; dark brown (7.5YR 3/2) extremely bouldery loam, brown (7.5YR 5/2) dry; weak medium and fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 10 percent gravel, 10 percent cobbles, 10 percent stones, and 40 percent boulders; neutral (pH 6.6); gradual wavy boundary.

AB—8 to 18 inches; dark brown (10YR 3/3) very bouldery loam, brown (10YR 4/3) dry; moderate medium and coarse subangular blocky structure; hard, firm, sticky and plastic; many very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 10 percent gravel, 5 percent cobbles, 15 percent stones, and 25 percent boulders; slightly alkaline pH 7.4); gradual wavy boundary.

Bw—18 to 29 inches; dark brown (10YR 3/3) extremely bouldery loam, pale brown (10YR 6/3) dry; massive; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 20 percent gravel, 10 percent cobbles, 15 percent stones, and 20 percent boulders; slightly alkaline (pH 7.4); gradual wavy boundary.

Bk—29 to 31 inches; dark brown (10YR 3/3) extremely bouldery loam, light yellowish brown (10YR 6/4) dry; massive; very hard, firm, slightly sticky and slightly plastic; few roots; common very fine and fine tubular pores; few fine carbonate filaments; carbonate coatings on underside of rock fragments; violently effervescent; 15 percent gravel, 10 percent cobbles, 15 percent stones, and 40 percent boulders; slightly alkaline (pH 7.4); abrupt irregular boundary.

2R—31 inches; fractured basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 20 inches
Depth to bedrock: 20 to 40 inches
Depth to secondary carbonates: 15 to 30 inches
Particle-size control section: Clay content—18 to 30 percent; rock fragment content—50 to 70 percent, mostly boulders and stones

A horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—extremely bouldery loam
Clay content—18 to 27 percent
Rock fragment content—60 to 80 percent total, with 10 to 20 percent gravel, 5 to 15 percent cobbles, 5 to 15 percent stones, and 30 to 45 percent boulders
Organic matter content—1 to 2 percent

AB horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—extremely bouldery loam
Clay content—18 to 27 percent

Rock fragment content—35 to 60 percent total, with 5 to 20 percent gravel, 5 to 10 percent cobbles, 5 to 20 percent stones, and 20 to 35 percent boulders
Organic matter content—1 to 2 percent
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bw horizon
Value—4 to 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—extremely bouldery loam, extremely bouldery clay loam, or very bouldery loam
Clay content—20 to 30 percent
Rock fragment content—50 to 70 percent total, with 10 to 20 percent gravel, 5 to 15 percent cobbles, 5 to 20 percent stones, and 15 to 25 percent boulders
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter

Bk horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Clay content—18 to 27 percent
Rock fragment content—60 to 80 percent total, with 10 to 20 percent gravel, 5 to 15 percent cobbles, 5 to 15 percent stones, and 30 to 45 percent boulders
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—1 to 11 percent
Salinity (electrical conductivity)—2 to 12 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 10

Redcliff Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Colluvium derived from volcanic rock such as basalt with a minor influence of volcanic ash
Slope range: 30 to 65 percent
Elevation: 5,070 to 5,350 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Aridic Haploxerolls

Typical Pedon

Redcliff very gravelly loam in an area of rangeland, in map unit 550; Redcliff–Rock outcrop complex, 30 to 65 percent south slopes; Lake County, Oregon; about 300 feet south and 2,200 feet west of the northeast corner of section 3, T. 23 S., R. 19 E.; U.S. Geological Survey Frederick Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 36 minutes, 56 seconds north and longitude 120 degrees, 27 minutes, 49 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; light brownish gray (10YR 6/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure parting to weak thin platy; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine and few medium and coarse vesicular pores; 30 percent gravel, 5 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

A2—3 to 12 inches; brown (10YR 5/3) very cobbly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to strong medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine and few medium interstitial and tubular pores; 25 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.6); gradual smooth boundary.

Bw1—12 to 22 inches; yellowish brown (10YR 5/4) very cobbly sandy clay loam, dark yellowish brown (10YR 3/4) moist; strong coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; common very fine tubular pores; 25 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

Bw2—22 to 32 inches; yellowish brown (10YR 5/4) very cobbly sandy clay loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few medium roots; common very fine tubular pores; 25 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.8); abrupt wavy boundary.

2R—32 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 16 inches, may include the upper part of the Bw horizon

Depth to bedrock: 20 to 40 inches

Particle-size control section: Clay content—15 to 35 percent, but averages more than 18 percent; rock fragment content—35 to 55 percent by weighted average

A1 horizon
Value—4 to 6 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Clay content—14 to 18 percent
Rock fragment content—35 to 50 percent total, with 30 to 40 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Organic matter content—1 to 2 percent
Reaction—slightly alkaline
Other feature—where mixed, A horizon has value of 4 or 5 dry

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly sandy loam or gravelly loam
Clay content—14 to 20 percent
Rock fragment content—20 to 50 percent total, with 15 to 30 percent gravel and 0 to 25 percent cobbles
Organic matter content—1 to 2 percent

Bw horizon
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 to 6 dry or moist
Texture—very gravelly sandy clay loam or very cobbly sandy clay loam
Clay content—15 to 35 percent

Rock fragment content—35 to 60 percent total, with 15 to 45 percent gravel and 0 to 30 percent cobbles
Reaction—slightly alkaline or moderately alkaline

Reese Series

Depth class: Very deep to bedrock
Drainage class: Poorly drained
Landscape: Basins
Landform: Alluvial flats
Parent material: Lacustrine and alluvial deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Elevation: 4,250 to 4,570 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, calcareous, mesic Duric Halaquepts

Typical Pedon

Reese very fine sandy loam in an area of rangeland; in the soil survey of Lake County, Oregon, Southern Part; in the northwest corner of the southeast corner of the southeast corner of section 8, T. 35 S., R. 25 E.; U.S. Geological Survey Flagstaff Lake 7.5-minute topographic quadrangle; latitude and longitude data not available. (Colors are for dry soil unless otherwise stated.)

An1—0 to 4 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, medium, and coarse roots; common very fine and fine tubular pores; slightly effervescent; very strongly alkaline (pH 9.1); abrupt smooth boundary.
2An2—4 to 10 inches; light brownish gray (10YR 6/2) loam, brown (10YR 4/3) moist; moderate thin platy structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and nonplastic; many very fine, fine, medium, and coarse roots; common very fine and fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.1); clear smooth boundary.
2Bwn—10 to 20 inches; light gray (10YR 7/2) clay loam, brown (10YR 4/3) moist; moderate medium platy structure parting to moderate medium granular; slightly hard, firm, slightly sticky and nonplastic; many very fine and fine roots; common very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.
2Bqn—20 to 33 inches; light gray (2.5Y 7/2) loam, brown (10YR 5/3) moist; massive; slightly hard, firm, nonsticky and nonplastic; few very fine and fine roots; common very fine and fine tubular pores; 15 percent medium and coarse cylindrical very firm durinodes; violently effervescent; very strongly alkaline (pH 9.1); abrupt wavy boundary.
3Bq1—33 to 44 inches; white (10YR 8/1) coarse sandy loam, light brownish gray (10YR 6/2) moist; massive; slightly hard, firm, nonsticky and nonplastic; few very fine and fine roots; common very fine and fine tubular pores; 40 percent medium and coarse cylindrical very firm durinodes; violently effervescent; strongly alkaline (pH 8.7); clear wavy boundary.
4Bq2—44 to 60 inches; white (10YR 8/1) loam, light brownish gray (10YR 6/2) moist; massive; slightly hard, firm, nonsticky and nonplastic; 15 percent medium

and coarse cylindrical very firm durinodes; few fine interstitial pores; violently effervescent; strongly alkaline (pH 8.7).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—18 to 28 percent by weighted average
Depth to water table: 12 to 36 inches below the surface (apparent) at some time during March through July
Frequency of flooding: Rare in March through July
Other feature: Carbonate salts throughout

An horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—very fine sandy loam, silty clay, or silt loam
Clay content—5 to 55 percent
Organic matter content—1 to 3 percent
Reaction—very strongly alkaline
Calcium carbonate equivalent—5 to 15 percent
Salinity (electrical conductivity)—16 to 32 millimhos per centimeter
Sodicity (sodium adsorption ratio)—100 to 500

2An horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—loam
Clay content—10 to 25 percent
Organic matter content—0.5 to 1.0 percent
Reaction—very strongly alkaline
Calcium carbonate equivalent—5 to 15 percent
Salinity (electrical conductivity)—16 to 32 millimhos per centimeter
Sodicity (sodium adsorption ratio)—100 to 500

2B horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Texture—loam or clay loam
Clay content—20 to 30 percent
Reaction—very strongly alkaline
Calcium carbonate equivalent—15 to 30 percent
Salinity (electrical conductivity)—2 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—30 to 140

3Bq and 4Bq horizons
Hue—10YR or 2.5Y
Value—7 or 8 dry, 5 or 6 moist
Chroma—1 to 3 dry or moist
Texture—loam, sandy loam, or coarse sandy loam
Clay content—10 to 27 percent
Durinodes—15 to 40 percent by volume
Reaction—strongly alkaline or very strongly alkaline
Calcium carbonate equivalent—15 to 30 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 30

Characteristics Outside Range of Series

The Reese soils in this survey area have a weak cambic horizon and are not hard, firm, and brittle.

Reluctan Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Hills and lava plateaus
Landform: Hillslopes and lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 0 to 30 percent
Elevation: 4,520 to 5,970 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine-loamy, mixed, superactive, frigid Aridic Argixerolls

Typical Pedon

Reluctan cobbly loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; about 2,000 feet south and 1,200 feet east of the northwest corner of section 23, T. 24 S., R. 28 E.; U.S. Geological Survey Palomino Buttes 7.5-minute topographic quadrangle; latitude and longitude data not available. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine, common fine, and few medium roots; common very fine and fine vesicular pores; 10 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.6); abrupt smooth boundary.

A2—2 to 9 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and nonplastic; many very fine, common fine, and few medium roots; few very fine and fine irregular pores; 10 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.

Bt1—9 to 15 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to weak fine angular blocky; slightly hard, friable, sticky and plastic; few very fine, fine, and medium roots; few fine and medium irregular pores; few faint clay films on faces of peds; 5 percent gravel and 5 percent cobbles; moderately alkaline (pH 8.0); gradual smooth boundary.

Bt2—15 to 26 inches; light brownish gray (10YR 6/2) sandy clay loam, dark grayish brown (10YR 4/2) moist; medium coarse subangular blocky structure parting to weak fine angular blocky; slightly hard, friable, sticky and plastic; few very fine, fine, and medium roots; few fine and medium irregular pores; common distinct clay films on faces of peds; 5 percent gravel and 5 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

2R—26 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 17 inches, may include part of the argillic horizon

Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—25 to 35 percent; rock fragment content—5 to 35 percent

A1 horizon
Value—4 or 5 dry
Chroma—2 or 3 dry or moist
Texture—loam, stony sandy loam, cobbly loam, or fine sandy loam
Clay content—5 to 25 percent
Rock fragment content—0 to 35 percent total, with 0 to 20 percent gravel, 0 to 15 percent cobbles, and 0 to 20 percent stones
Organic matter content—1 to 2 percent
Reaction—neutral or slightly alkaline

A2 horizon
Value—4 or 5 dry
Chroma—2 or 3 dry or moist
Texture—sandy loam, loam, or gravelly loam
Clay content—15 to 25 percent
Rock fragment content—5 to 35 percent total, with 5 to 35 percent gravel and 0 to 5 percent cobbles
Organic matter content—1 to 2 percent
Reaction—slightly alkaline or moderately alkaline

Bt horizon
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—gravelly loam, sandy clay loam, or gravelly clay loam
Clay content—25 to 35 percent
Rock fragment content—5 to 35 percent total, with 5 to 35 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline or moderately alkaline

Riddleranch Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus and mountains
Landform: Deeply dissected lava plateaus and mountain slopes
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 15 to 60 percent
Elevation: 4,300 to 5,750 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Aridic Haploxerolls

Typical Pedon

Riddleranch stony loam, 15 to 40 percent north slopes, in an area of rangeland, in map unit 554, Lake County, Oregon; about 1,200 feet north and 2,300 feet west of the southeast corner of section 12, T. 28 S., R. 20 E.; U.S. Geological Survey Buffalo Well 7.5-minute topographic quadrangle; latitude 43 degrees, 9 minutes, 8 seconds north and longitude 120 degrees, 18 minutes, 2 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; brown (10YR 5/3) stony loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine interstitial and tubular pores; 10 percent gravel, 10 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.
A2—2 to 8 inches; brown (10YR 5/3) stony loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to strong fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and fine tubular pores; 15 percent gravel, 5 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.
Bt—8 to 18 inches; yellowish brown (10YR 5/4) very cobbly loam, dark yellowish brown (10YR 3/4) moist; strong medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; common very fine and fine tubular pores; 15 percent gravel, 25 percent cobbles, and 5 percent stones; common faint clay films on faces of peds; slightly alkaline (pH 7.5); clear smooth boundary.
C—18 to 28 inches; light brown (7.5YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine tubular pores; 15 percent gravel, 30 percent cobbles, and 15 percent stones; slightly alkaline (pH 7.6); abrupt wavy boundary.
R—28 inches; fractured basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 13 inches
Depth to bedrock: 20 to 35 inches
Particle-size control section: Clay content—20 to 28 percent; rock fragment content—50 to 80 percent

A horizon
Value—4 or 5 dry
Chroma—2 or 3 dry or moist
Texture—stony loam, very stony loam, very gravelly loam, or very stony sandy loam
Clay content—10 to 22 percent
Rock fragment content—25 to 60 percent total, with 10 to 50 percent gravel, 0 to 20 percent cobbles, and 0 to 30 percent stones
Organic matter content—1 to 2 percent
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bt horizon, and Bw horizon (where present)
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very cobbly loam, extremely stony loam, very gravelly loam, or very gravelly clay loam
Clay content—20 to 28 percent
Rock fragment content—50 to 80 percent total, with 10 to 30 percent gravel, 15 to 40 percent cobbles, and 5 to 30 percent stones
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2
Other feature—clay accumulation in Bt horizon is too low to meet the requirement for an argillic horizon

C horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very cobbly loam, extremely stony loam, or very gravelly loam
Clay content—20 to 27 percent
Rock fragment content—50 to 85 percent total, with 10 to 30 percent gravel, 15 to 40 percent cobbles, and 5 to 30 percent stones
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Rinconflat Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Alluvial fans
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 3 to 10 percent
Elevation: 4,260 to 4,990 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Xeric Haplocambids

Typical Pedon

Rinconflat stony loam in an area of rangeland, in the soil survey of Harney County Area, Oregon; about 2,000 feet south and 2,000 feet east of the northwest corner of section 25, T. 39 S., R. 33 E.; Rincon Flat 7.5-minute topographic quadrangle; latitude 42 degrees, 7 minutes, 30 seconds north and longitude 118 degrees, 47 minutes, 23 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; pale brown (10YR 6/3) stony loam, dark brown (10YR 3/3) moist; moderate thick platy structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many fine irregular pores; 15 percent gravel, 5 percent cobbles, and 10 percent stones; neutral (pH 6.9); clear wavy boundary.
Bw1—4 to 13 inches; yellowish brown (10YR 5/4) gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and common fine roots; many fine and medium irregular pores; 20 percent gravel; neutral (pH 7.2); clear wavy boundary.
Bw2—13 to 23 inches; yellowish brown (10YR 5/4) very cobbly loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine and few very fine and medium roots; many very fine and fine irregular pores; 20 percent gravel and 20 percent cobbles; neutral (pH 7.2); gradual wavy boundary.
Bw3—23 to 29 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots; many very fine and fine irregular pores; 35 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.7); clear wavy boundary.

2Cq—29 to 57 inches; pale brown (10YR 6/3) cobbly sandy loam, dark yellowish brown (10YR 3/4) moist; massive; slightly hard, firm, nonsticky and nonplastic; few fine roots; few fine irregular pores; 15 percent gravel and 10 percent cobbles; 10 percent silica nodules; slightly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2C—57 to 61 inches; yellowish brown (10YR 5/4) very cobbly sandy clay loam, dark brown (7.5YR 3/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine irregular pores; 20 percent gravel and 25 percent cobbles; slightly effervescent; strongly alkaline (pH 8.5).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—18 to 27 percent; rock fragment content—35 to 60 percent

A horizon
Value—4 to 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—stony loam
Clay content—15 to 27 percent
Rock fragment content—15 to 35 percent total, with 10 to 20 percent gravel, 5 to 10 percent cobbles, and 10 to 20 percent stones
Organic matter content—0.5 to 1.0 percent
Reaction—neutral

Bw horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Texture—very gravelly sandy clay loam, gravelly loam, very gravelly loam, or very cobbly loam
Clay content—18 to 27 percent
Rock fragment content—20 to 60 percent total, with 20 to 55 percent gravel, 0 to 30 percent cobbles, and 0 to 5 percent stones
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

2Cq and 2C horizons
Hue—10YR or 7.5YR
Value—3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—cobbly sandy loam, very cobbly sandy clay loam, or very gravelly sandy loam
Clay content—10 to 27 percent
Rock fragment content—25 to 60 percent total, with 15 to 50 percent gravel, 10 to 20 percent cobbles, and 0 to 5 percent stones
Durinode content—0 to 15 percent weakly cemented durinodes
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 2 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Royst Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained

Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 2 to 30 percent
Elevation: 4,410 to 6,600 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey-skeletal, smectitic, frigid Pachic Argixerolls

Typical Pedon

Royst very cobbly loam, 2 to 15 percent slopes, in an area of rangeland, in map unit 566, Lake County, Oregon; about 100 feet south and 1,000 feet east of the northwest corner of section 24, T. 35 S., R. 21 E.; U.S. Geological Survey Lake Abert South 7.5-minute topographic quadrangle; latitude 42 degrees, 31 minutes, 34 seconds north and longitude 120 degrees, 11 minutes, 24 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; dark grayish brown (10YR 4/2) very cobbly loam, very dark brown (10YR 2/2) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common fine and medium tubular and interstitial pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear smooth boundary.

A2—3 to 9 inches; dark grayish brown (10YR 4/2) very cobbly loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure parting to moderate medium granular; soft, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine and medium tubular and interstitial pores; 20 percent gravel and 20 percent cobbles; neutral (pH 7.3); clear smooth boundary.

Bt1—9 to 15 inches; grayish brown (10YR 5/2) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to weak medium angular blocky; hard, firm, moderately sticky and moderately plastic; common very fine, fine, and medium and few coarse roots; common fine and medium interstitial and tubular pores; common faint clay films on faces of peds; 20 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—15 to 25 inches; brown (10YR 5/3) very cobbly clay, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to strong medium angular blocky; very hard, very firm, moderately sticky and very plastic; few very fine, common fine and medium, and few coarse roots; common fine and medium interstitial and tubular pores; common distinct and few prominent clay films on faces of peds; 20 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.4); abrupt wavy boundary.

R—25 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 20 to 30 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—35 to 45 percent; rock fragment content—35 to 55 percent

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 dry or moist

Texture—very cobbly loam or very stony loam
Clay content—18 to 24 percent
Rock fragment content—35 to 60 percent total, with 15 to 30 percent gravel, 5 to 40 percent cobbles, and 0 to 25 percent stones
Organic matter content—1 to 3 percent
Reaction—neutral

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 dry or moist
Texture—very cobbly loam
Clay content—20 to 26 percent
Rock fragment content—35 to 55 percent total, with 15 to 30 percent gravel, 20 to 40 percent cobbles, and 0 to 10 percent stones
Organic matter content—1 to 3 percent
Reaction—neutral

Bt horizon
Value—5 dry, 3 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly clay loam or very cobbly clay
Clay content—35 to 40 percent
Rock fragment content—35 to 55 percent total, with 15 to 30 percent gravel, 15 to 40 percent cobbles, and 0 to 10 percent stones
Reaction—slightly alkaline

Characteristics Outside Range of Series

The soils in this survey area do not have a paralithic contact over the lithic contact and are slightly alkaline in the Bt horizon.

Sagehen Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 0 to 20 percent
Elevation: 4,570 to 5,400 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Lithic Xeric Haplocambids

Typical Pedon

Sagehen very gravelly loam, 0 to 5 percent slopes, in map unit 569, Lake County, Oregon; about 300 feet north and 2,400 feet west of the southeast corner of section 15, T. 32 S., R. 23 E.; U.S. Geological Survey Sagebrush Knoll 7.5-minute topographic quadrangle; latitude 42 degrees, 47 minutes, 24 seconds north and longitude 119 degrees, 59 minutes, 24 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; grayish brown (10YR 5/2) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to weak fine granular; many fine roots; many fine irregular and vesicular pores; slightly hard, friable, moderately sticky and moderately plastic; 55 percent gravel; neutral (pH 6.8); gradual wavy boundary.

Bw—3 to 11 inches; grayish brown (10YR 5/2) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; common fine roots; many fine irregular and vesicular pores; slightly hard, friable, moderately sticky and moderately plastic; 25 percent gravel and 15 percent cobbles; neutral (pH 6.8); clear wavy boundary.

R—11 inches; welded tuff.

Range in Characteristics

Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—25 to 30 percent; rock fragment content—35 to 50 percent

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very gravelly loam or extremely gravelly loam
Clay content—20 to 25 percent
Rock fragment content—35 to 80 percent total, with 30 to 80 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Organic matter content—0.2 to 0.8 percent
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bw horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly loam, very gravelly loam, or very gravelly clay loam
Clay content—25 to 30 percent
Rock fragment content—35 to 50 percent total, with 20 to 40 percent gravel, 10 to 20 percent cobbles, and 0 to 5 percent stones
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Salhouse Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins
Landform: Stable dunes on beach ridges and sand sheets on lakebeds
Parent material: Eolian deposits derived from volcanic ash over lacustrine deposits derived from volcanic ash and mixed volcanic rock
Slope range: 0 to 20 percent
Elevation: 4,290 to 4,480 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, calcareous, frigid Vitrandic Torripsamments

Typical Pedon

Salhouse ashy sand in an area of rangeland, in map unit 277, Dune land-Salhouse complex, 2 to 35 percent slopes; Lake County, Oregon; about 20 miles east of the town of Christmas Valley, in the dunefield south of the Lost Forest Research Natural Area; 750 feet south and 3,700 feet west of the northeast corner of section 7, T. 26 S., R. 20 E.; U.S. Geological Survey Sand Rock 7.5-minute topographic quadrangle; latitude 43 degrees, 20 minutes, 12.5 seconds north and longitude 120 degrees, 22 minutes, 4.4 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 5 inches; light brownish gray (10YR 6/2) ashy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; many fine interstitial pores; moderately alkaline (pH 8.0); clear smooth boundary.

C1—5 to 24 inches; grayish brown (10YR 5/2) ashy loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine and common medium roots; many fine interstitial pores; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C2—24 to 42 inches; grayish brown (10YR 5/2) ashy loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine and common medium roots; many fine interstitial pores; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2Bwb—42 to 61 inches; light brownish gray (10YR 6/2) ashy silt loam, dark grayish brown (10YR 4/2) moist; weak and moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium and few coarse roots; common very fine dendritic tubular pores; many distinct silt coatings (skeletans) on faces of peds and lining pores; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to the buried cambic horizon: 40 to 60 inches or more
Particle-size control section: Clay content—3 to 10 percent; rock fragment content—0 to 5 percent
Lithology of fragments: Volcanic rock such as basalt or welded tuff

A horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—ashy sand, ashy loamy fine sand, or ashy loamy sand
Clay content—2 to 8 percent
Rock fragment content—0 to 5 percent gravel
Organic matter content—0.1 to 0.3 percent
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 30
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

C horizon
Value—5 to 7 dry, 2 to 4 moist
Chroma—2 to 4 dry or moist
Texture—ashy loamy sand or ashy sand
Clay content—3 to 10 percent
Rock fragment content—0 to 5 percent gravel
Reaction—strongly alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 30
Effervescence—very slightly effervescent or slightly effervescent
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

2Bwb horizon
Value—5 to 7 dry, 2 to 4 moist
Texture—ashy sandy loam, ashy loam, loam, ashy silt loam, or silt loam
Clay content—10 to 25 percent
Rock fragment content—0 to 5 percent gravel
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30
Volcanic glass content—20 to 60 percent in coarse silt to fine sand fractions

Sandrock Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Structural benches
Parent material: Volcanic ash and slope alluvium derived from volcanic rock such as basaltic tuff or tuff breccia
Slope range: 0 to 5 percent
Elevation: 4,300 to 4,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Lithic Xeric Haplargids

Typical Pedon

Sandrock channery ashy fine sandy loam in an area of rangeland, in map unit 420, Lostforest-Sandrock-Morehouse complex, 0 to 10 percent slopes; Lake County, Oregon; in the Lost Forest Research Natural Area northeast of Christmas Lake Valley; about 1,850 feet south and 400 feet east of the northwest corner of section 34, T. 25 S., R. 20 E.; U.S. Geological Survey Sand Rock 7.5-minute topographic quadrangle; latitude 43 degrees, 21 minutes, 53 seconds north and longitude 120 degrees, 18 minutes, 51 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; light gray (10YR 7/2) channery ashy fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate thick and very thick platy structure; soft, friable, slightly sticky and nonplastic; common very fine and fine and few medium roots; many very fine, fine, and medium vesicular pores; 3 percent gravel and 12 percent channers; slightly alkaline (pH 7.4); abrupt smooth boundary.

BA—3 to 8 inches; light brownish gray (10YR 6/2) channery ashy fine sandy loam, dark grayish brown (10YR 4/2) moist; weak very fine subangular blocky structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, common fine and medium, and few coarse and very coarse roots; common very fine tubular pores; 3 percent gravel and 12 percent channers; slightly alkaline (pH 7.4); clear smooth boundary.

Bt—8 to 12 inches; pale brown (10YR 6/3) channery ashy sandy clay loam, dark grayish brown (10YR 4/2) moist; weak and moderate very fine subangular blocky structure; moderately hard, friable, moderately sticky and moderately plastic; few very fine and fine, common medium, and few coarse and very coarse roots; common very fine tubular pores; common faint clay films on faces of peds; 20 percent channers; neutral (pH 7.2); abrupt irregular boundary.

2R—12 inches; basaltic tuff; calcium carbonate coatings on surface of bedrock.

Range in Characteristics

Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—14 to 25 percent by weighted average; rock fragment content—10 to 25 percent by weighted average
Other feature: 25 to 85 percent volcanic glass in coarse silt to fine sand fractions

A horizon
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—channery ashy fine sandy loam or ashy loamy fine sand
Clay content—4 to 18 percent
Rock fragment content—0 to 30 percent total, with 0 to 10 percent gravel and 5 to 20 percent channers
Organic matter content—0.5 to 0.8 percent
Reaction—neutral or slightly alkaline

BA horizon
Value—5 or 6 dry
Chroma—2 or 3 dry or moist
Texture—channery ashy fine sandy loam, gravelly ashy fine sandy loam, channery ashy very fine sandy loam, or gravelly ashy very fine sandy loam
Clay content—12 to 20 percent
Rock fragment content—15 to 30 percent total, with 0 to 10 percent gravel and 5 to 20 percent channers
Reaction—neutral or slightly alkaline

Bt horizon
Chroma—2 or 3 dry or moist
Texture—channery ashy sandy clay loam, ashy sandy clay loam, channery ashy clay loam, or ashy clay loam
Clay content—20 to 30 percent
Rock fragment content—5 to 30 percent total, with 0 to 10 percent gravel and 5 to 30 percent channers
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Seharney Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Colluvium and residuum derived from volcanic rock such as andesite or basalt with an influence of eolian material
Slope range: 2 to 20 percent
Elevation: 4,420 to 5,250 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid, shallow Xereptic Haplodurids

Typical Pedon

Seharney very stony sandy loam, 10 to 20 percent slopes, in an area of rangeland, in map unit 574, Lake County, Oregon; about 1,100 feet north and 2,100 feet west of the southeast corner of section 6, T. 31 S., R. 21 E.; U.S. Geological Survey Diatomite Reservoir 7.5-minute topographic quadrangle; latitude 42 degrees, 54 minutes, 29 seconds north and longitude 120 degrees, 17 minutes, 13 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; pale brown (10YR 6/3) very stony sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to moderate very fine granular; soft, very friable, nonsticky and slightly plastic; few very fine and fine roots; 15 percent gravel, 5 percent cobbles, and 20 percent stones; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bw—3 to 11 inches; brown (10YR 5/3) very cobbly loam, dark yellowish brown (10YR 3/4) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine, medium, and coarse roots; 15 percent gravel, 20 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.5); abrupt wavy boundary.

Bkqm—11 to 13 inches; yellow (10YR 7/6) and light yellowish brown (10YR 6/4) cemented material; massive; very hard and brittle; few very fine, fine, and medium roots; strongly cemented with silica and areas of moderately cemented material; slightly effervescent with disseminated lime throughout matrix; moderately alkaline (pH 8.0); abrupt wavy boundary.

2R—13 inches; basalt.

Range in Characteristics

Depth to the duripan: 11 to 19 inches
Depth to bedrock: 13 to 30 inches
Particle-size control section: Clay content—18 to 27 percent; rock fragment content—35 to 50 percent

A horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3 dry, 3 or 4 moist
Texture—very stony sandy loam or gravelly sandy loam
Clay content—8 to 18 percent
Rock fragment content—15 to 50 percent total, with 10 to 25 percent gravel, 0 to 10 percent cobbles, and 0 to 30 percent stones
Organic matter content—0.4 to 0.8 percent
Reaction—neutral
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bw horizon
Value—5 or 6 dry, 3 moist
Chroma—2 or 3 dry, 3 or 4 moist
Texture—very cobbly loam or very stony sandy loam
Clay content—18 to 27 percent
Rock fragment content—35 to 50 percent total, with 15 to 25 percent gravel, 15 to 30 percent cobbles, and 5 to 20 percent stones
Reaction—neutral
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bqkm horizon
Value—7 or 8 dry, 5 or 6 moist
Chroma—3 to 6 dry or moist
Cementation—strongly cemented or moderately cemented

Senra Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Volcanic ash and residuum derived from volcanic rock such as basalt or welded tuff breccia
Slope range: 0 to 20 percent
Elevation: 4,420 to 5,350 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid, shallow Vitritorrandic Durixerolls

Typical Pedon

Senra ashy fine sandy loam in an area of rangeland, in map unit 468, Moonbeam-Senra complex, gravelly, 1 to 5 percent slopes; Lake County, Oregon; about 3 miles southeast of Saddle Butte; about 1,600 feet south and 500 feet west of the northeast corner of section 30, T. 23 S., R. 19 E.; U.S. Geological Survey Frederick Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 33 minutes, 12 seconds north and longitude 120 degrees, 28 minutes, 38 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; strong thick platy structure parting to weak thin platy; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine, common fine, and few medium vesicular pores; 10 percent gravel and 2 percent cobbles; slightly alkaline (pH 7.5); abrupt smooth boundary.

A2—3 to 10 inches; grayish brown (10YR 5/2) ashy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to strong medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine, many fine, and few medium roots; common very fine and fine and few medium interstitial and tubular pores; many filled cicada burrows; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.5); clear smooth boundary.

Bt1—10 to 15 inches; pale brown (10YR 6/3) ashy sandy clay loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to weak medium angular blocky; slightly hard, very friable, slightly sticky and moderately plastic; common very fine, many fine, and few medium roots; common very fine and fine and few medium tubular pores; 5 percent gravel; many filled cicada burrows; common faint clay films on faces of peds; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bt2—15 to 19 inches; pale brown (10YR 6/3) channery ashy clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure parting to weak medium angular blocky; slightly hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine and fine tubular pores; 5 percent gravel; 15 percent very strongly cemented platy duripan fragments; common faint and few distinct clay films on faces of peds; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bqm1—19 to 26 inches; light yellowish brown (10YR 6/4) cemented material, yellowish brown (10YR 5/4) moist; strong thick and very thick platy structure; rigid; very strongly cemented with secondary silica; upper 2 inches of pan is fractured; slightly alkaline (pH 7.7); abrupt smooth boundary.

Bqm2—26 to 32 inches; very pale brown (10YR 7/4) cemented material, light yellowish brown (10YR 6/4) moist; strong thick platy structure; very rigid; indurated with secondary silica; slightly alkaline (pH 7.8); abrupt wavy boundary.

R—32 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 13 inches
Depth to the duripan: 15 to 20 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—27 to 35 percent; rock fragment content—0 to 10 percent
Reaction: Slightly alkaline
Other features: Volcanic glass content—40 to 80 percent in coarse silt to fine sand fractions; lithology of fragments—mainly basalt and very strongly cemented to indurated duripan fragments

A1 horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist; 5 dry and 3 moist where mixed
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam, gravelly ashy very fine sandy loam, cobbly ashy loam, ashy fine sandy loam, gravelly ashy fine sandy loam, ashy very fine sandy loam, ashy sandy clay loam, or cobbly ashy fine sandy loam
Clay content—10 to 15 percent
Rock fragment content—0 to 35 percent total, with 0 to 25 percent gravel and 0 to 20 percent cobbles
Organic matter content—1 to 3 percent

A2 horizon
Hue—10YR or 7.5YR
Chroma—2 or 3 dry or moist; 5 dry and 3 moist where mixed
Texture—ashy loam
Clay content—10 to 20 percent
Rock fragment content—5 to 15 percent total, with 5 to 15 percent gravel and 0 to 5 percent cobbles
Organic matter content—1 to 3 percent

Bt1 horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—ashy sandy clay loam
Clay content—21 to 28 percent
Rock fragment content—0 to 10 percent total, with 0 to 5 percent gravel and 0 to 5 percent cobbles

Bt2 horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry, 3 or 4 moist
Texture—channery ashy clay loam or ashy sandy clay loam
Clay content—27 to 36 percent
Rock fragment content—0 to 30 percent total, with 0 to 10 percent basalt gravel and 0 to 25 percent very strongly cemented duripan channers

Bqm horizon
Cementation—very strongly cemented or indurated

Shanahan Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Elevation: 4,600 to 5,600 feet
Mean annual precipitation: 15 to 35 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Taxonomic classification: Ashy over loamy, glassy over isotic Xeric Vitricryands

Typical Pedon

Shanahan paragravelly ashy loamy coarse sand, low landscape position, 0 to 1 percent slopes, in an area of forestland; in map unit 587, Lake County, Oregon; about 2,000 feet south and 2,400 feet west of the northeast corner of section 11, T. 23 S., R. 11 E.; U.S. Geological Survey Spring Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 35 minutes, 50 seconds north and longitude 121 degrees, 21 minutes, 40 seconds west; NAD 27. (Colors are for moist soil unless otherwise stated.)

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) paragravelly ashy loamy coarse sand, pale brown (10YR 6/3) dry; single grain; loose, nonsticky and nonplastic; common very fine roots; many fine interstitial pores; 30 percent pumice paragravel; light gray (10YR 7/2) pumiceous ash grains; neutral (pH 6.6); clear smooth boundary.

A2—4 to 9 inches; dark yellowish brown (10YR 4/4) paragravelly ashy loamy coarse sand, very pale brown (10YR 7/3) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; many fine interstitial pores; 20 percent paragravel; light gray (10YR 7/2) pumiceous ash grains; neutral (pH 6.8); clear smooth boundary.

C1—9 to 16 inches; brown (10YR 4/3) paragravelly ashy coarse sand, very pale brown (10YR 7/3) dry; single grain; loose, nonsticky and nonplastic; few fine, medium, and coarse roots; many medium interstitial pores; 15 percent paragravel; light gray (10YR 8/2) pumiceous ash grains; neutral (pH 6.6); clear smooth boundary.

C2—16 to 24 inches; very pale brown (10YR 7/3) very paragravelly ashy coarse sand, very pale brown (10YR 7/3) dry; single grain; loose, nonsticky and nonplastic; few very fine roots; many medium interstitial pores; 40 percent paragravel; white (10YR 8/2) pumiceous ash grains; krotovina and root channels with A horizon material more than 10 to 15 percent of volume; neutral (pH 7.0); clear smooth boundary.

C3—24 to 38 inches; light gray (10YR 7/2) and very dark brown (10YR 2/2) ashy coarse sand, white (10YR 8/2) and very dark brown (10YR 2/2) dry; single grain; loose, nonsticky and nonplastic; few fine and medium roots; many medium interstitial pores; 5 percent paragravel; krotovina and root channels with A horizon material more than 15 to 20 percent of volume; neutral (pH 7.0); abrupt wavy boundary.

2Bwb—38 to 60 inches; dark brown (7.5YR 3/4) gravelly sandy loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few fine and medium roots; many very fine interstitial pores; 20 percent basalt gravel; lenses of basalt sand in 5 to 10 percent of volume; neutral (pH 7.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to buried soil: 30 to 40 inches
Particle-size control section: Clay content—0 to 5 percent in the upper part and 10 to 20 percent in the 2Bwb horizon; rock fragment content—5 to 50 percent paragravel in the upper part and 5 to 30 percent basalt gravel in the 2Bwb horizon (weighted average less than 35 percent)
Reaction: Neutral throughout

A horizon
Value—3 or 4 moist, 5 to 7 dry
Chroma—2 to 4 moist, 1 to 3 dry
Texture—paragravelly ashy loamy coarse sand or ashy loamy coarse sand
Clay content—0 to 5 percent
Pararock fragment content—5 to 30 percent paragravel
Organic matter content—0.5 to 1.0 percent

C horizon
Value—4 to 8 moist, 6 to 8 dry
Chroma—1 to 6 moist, 1 to 4 dry
Texture—ashy coarse sand, paragravelly ashy coarse sand, or very paragravelly ashy coarse sand
Clay content—0 to 5 percent
Pararock fragment content—5 to 50 percent paragravel
Other feature—basaltic sand grains have value of 2 moist or dry

2Bwb horizon
Hue—10YR or 7.5YR
Value—3 or 4 moist, 5 to 7 dry
Chroma—3 or 4 moist or dry
Texture—sandy loam or gravelly sandy loam
Clay content—10 to 15 percent
Rock fragment content—5 to 30 gravel

Shukash Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Volcanic ash over colluvium and residuum derived from volcanic rock such as basalt
Slope range: 0 to 65 percent
Elevation: 4,600 to 6,010 feet

Mean annual precipitation: 16 to 24 inches
Mean annual air temperature: 42 to 44 degrees F
Frost-free period: 10 to 50 days

Taxonomic classification: Ashy over loamy-skeletal, glassy over isotic Xeric Vitricryands

Typical Pedon

Shukash paragravelly ashy loamy coarse sand, 0 to 8 percent slopes, in an area of forestland; in map unit 589, Lake County, Oregon; about 500 feet north and 500 feet east of the southwest corner of section 1, T. 23 S., R. 11 E.; U.S. Geological Survey Spring Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 36 minutes, 18 seconds north and longitude 121 degrees, 20 minutes, 53 seconds east. (Colors are for moist soil unless otherwise stated.)

A—0 to 3 inches; dark brown (10YR 3/3) paragravelly ashy loamy coarse sand, light brownish gray (10YR 6/2) dry; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many fine interstitial pores; 20 percent pumice paragravel; neutral (pH 6.6); clear smooth boundary.

AC—3 to 10 inches; dark yellowish brown (10YR 4/4) paragravelly ashy loamy coarse sand, light gray (10YR 7/2) dry; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many medium interstitial pores; 15 percent pumice paragravel; neutral (pH 6.6); gradual wavy boundary.

C1—10 to 23 inches; light gray (10YR 7/2) very paragravelly ashy coarse sand, light gray (10YR 7/2) dry; single grain; loose, nonsticky and nonplastic; few very fine, fine, and medium roots; many medium interstitial pores; 50 percent pumice paragravel; neutral (pH 6.8); clear smooth boundary.

C2—23 to 37 inches; light gray (10YR 7/2) and very dark brown (10YR 2/2) ashy coarse sand, very pale brown (10YR 7/3) dry; single grain; loose, nonsticky and nonplastic; few fine and medium roots; many medium interstitial pores; neutral (pH 6.8); abrupt wavy boundary.

2Bwb—37 to 60 inches; dark brown (10YR 3/3) very stony sandy loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few medium roots; many very fine interstitial pores; 50 percent basalt stones and 5 percent basalt gravel; neutral (pH 7.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to very stony buried layer: 30 to 40 inches
Particle-size control section: Clay content—0 to 5 percent in the upper part and 10 to 20 percent in the lower part; rock fragment content—5 to 35 percent paragravel in the upper part and 40 to 70 percent gravel and stones in the lower part
Reaction: Neutral throughout
Other feature: Some pedons have a 1- to 3-inch-thick organic layer.

A horizon
Value—3 or 4 moist, 6 or 7 dry
Chroma—2 to 4 moist or dry
Texture—paragravelly ashy loamy coarse sand or paragravelly ashy loamy sand
Clay content—0 to 5 percent
Pararock fragment content—15 to 30 percent paragravel
Organic matter content—0.5 to 1.0 percent

AC horizon
Value—3 or 4 moist, 6 or 7 dry
Chroma—2 to 4 moist or dry

Texture—paragravelly ashy loamy coarse sand or ashy loamy sand
Clay content—0 to 5 percent
Pararock fragment content—15 to 30 percent paragravel

C horizon
Value—4 to 8 moist, 6 to 8 dry
Chroma—1 to 8 moist or dry
Texture—ashy coarse sand, paragravelly ashy coarse sand, or very paragravelly ashy coarse sand
Pararock fragment content—0 to 60 percent paragravel

2Bwb horizon
Hue—10YR or 7.5YR
Value—3 or 4 moist, 5 to 7 dry
Chroma—3 or 4 moist or dry
Texture—very stony sandy loam, extremely stony sandy loam, very stony loam, or extremely loam
Clay content—10 to 20 percent
Rock fragment content—40 to 70 percent total, with 5 to 10 percent gravel and 35 to 60 percent stones

Silverash Series

Depth class: Very deep to bedrock
Drainage class: Poorly drained
Landscape: Lava plateaus and basins
Landform: Depressions of lava plateaus and lakebeds
Parent material: Volcanic ash mixed with lacustrine and alluvial deposits derived from mixed volcanic rock
Slope range: 0 to 2 percent
Elevation: 4,310 to 5,270 feet
Mean annual precipitation: 8 to 12 inches.
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Aquandic Palexeralfs

Typical Pedon

Silverash ashy fine sandy loam, 0 to 1 percent slopes, in an area of rangeland, in map unit 619, Lake County, Oregon; about 2,100 feet south and 1,900 feet west of the northeast corner of section 18, T. 25 S., R. 21 E.; U.S. Geological Survey Chicago Valley 7.5-minute topographic quadrangle; latitude 43 degrees, 24 minutes, 35 seconds north and longitude 120 degrees, 14 minutes, 35 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; pale brown (10YR 6/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate thick platy structure parting to weak thin platy; slightly hard, very friable, nonsticky and slightly plastic; few fine and medium roots; many very fine and common fine vesicular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.
AE—2 to 8 inches; light brownish gray (10YR 6/2) ashy loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; few very fine vesicular pores and common fine interstitial and tubular pores; common faint dark gray (10YR 4/1) zones of iron depletion on faces of peds; slightly alkaline (pH 7.5); abrupt smooth boundary.

2Bt1—8 to 16 inches; light brown (7.5YR 6/3) clay, brown (7.5YR 4/2) moist; moderate medium prismatic structure parting to strong medium angular blocky; very hard, very firm, moderately sticky and very plastic; few medium roots; few fine tubular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.5); clear smooth boundary.

2Bt2—16 to 21 inches; pinkish gray (7.5YR 6/2) clay loam, brown (7.5YR 4/2) moist; weak medium prismatic structure parting to moderate medium angular blocky; hard, firm, moderately sticky and very plastic; few medium roots; few fine tubular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.6); clear smooth boundary.

3C1—21 to 38 inches; light brownish gray (10YR 6/2) sandy clay loam, dark grayish brown (10YR 4/2) moist; massive; very hard, firm, moderately sticky and moderately plastic; few medium roots; few very fine tubular pores; slightly alkaline (pH 7.8); gradual smooth boundary.

3C2—38 to 62 inches; light gray (10YR 7/2) very fine sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; few medium roots; common very fine and fine tubular pores; moderately alkaline (pH 8.0).

Range in Characteristics

Depth to bedrock: More than 60 inches

Depth to argillic horizon: 7 to 9 inches

Particle-size control section: Clay content—35 to 50 percent

Depth to water table: At the surface to a depth of 8 inches below the surface (perched) at some time in January through July; at the surface to a depth of 12 inches above the surface at some time in January through May (frequent ponding)

Other features: A duripan is below a depth of 50 inches in some pedons. An abrupt boundary is between the A or AE horizon and the 2Bt1 horizon with an absolute clay increase of 20 to 30 percent.

A horizon

Value—6 or 7 dry, 3 to 5 moist
Chroma—1 to 3 dry or moist
Texture—ashy fine sandy loam, ashy loam, or ashy silt loam
Clay content—10 to 25 percent
Organic matter content—0.5 to 1.0 percent
Reaction—neutral or slightly alkaline
Other features—30 to 60 percent volcanic ash in coarse silt to fine sand fractions; redoximorphic concentrations may occur as distinct and/or prominent masses of iron accumulation

AE horizon

Value—6 or 7 dry, 4 or 5 moist
Chroma—1 or 2 dry or moist
Texture—ashy loam or ashy silt loam
Clay content—10 to 18 percent
Organic matter content—0.2 to 0.8 percent
Reaction—slightly alkaline

2Bt horizon

Hue—10YR, 7.5YR, or 2.5Y
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—clay, clay loam, or silty clay loam

Clay content—35 to 50 percent
Reaction—slightly alkaline

3C horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—sandy clay loam, very fine sandy loam, or clay loam
Clay content—15 to 35 percent
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Sisters Series

Depth class: Deep or very deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus
Parent material: Volcanic ash over residuum and colluvium derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Elevation: 4,600 to 5,000 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy over loamy, glassy over mixed, superactive, frigid Humic Vitrixerands

Typical Pedon

Sisters paragravelly ashy loamy sand in an area of forestland; in map unit 598, Sisters-Wanoga complex, 0 to 3 percent slopes; Lake County, Oregon; about 2,500 feet south and 800 feet east of the northwest corner of section 30, T. 25 S., R. 13 E.; U.S. Geological Survey Hole In the Ground 7.5-minute topographic quadrangle; latitude and longitude data are not available. (Colors are for moist soil unless otherwise stated.)

Oi—0 to 1 inch; slightly decomposed plant material consisting of pine needles and litter.
A1—1 to 5 inches; very dark brown (10YR 2/2) paragravelly ashy loamy sand, brown (10YR 5/3) dry; single grain; loose, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 20 percent light gray (10YR 7/2) gravel-sized pumice; neutral (pH 6.8); clear wavy boundary.
A2—5 to 10 inches; very dark grayish brown (10YR 3/2) paragravelly ashy loamy sand, brown (10YR 5/3) dry; massive; loose, nonsticky and nonplastic; few fine, medium, and coarse roots; many very fine interstitial pores; 20 percent light gray (10YR 7/2) gravel-sized pumice; neutral (pH 7.0); clear wavy boundary.
AC—10 to 17 inches; dark brown (10YR 3/3) ashy loamy sand, brown (10YR 5/3) dry; single grain; loose, nonsticky and nonplastic; few fine, medium, and coarse roots; many very fine interstitial pores; 10 percent light gray (10YR 7/2) gravel-sized pumice; neutral (pH 7.0); clear wavy boundary.
C1—17 to 24 inches; light brownish gray (10YR 6/2) paragravelly ashy sand, very pale brown (10YR 8/3) dry; single grain; loose, nonsticky and nonplastic; few

medium roots; many very fine interstitial pores; 25 percent light gray (10YR 7/2) gravel-sized pumice; slightly alkaline (pH 7.4); gradual smooth boundary.

C2—24 to 33 inches; light gray (10YR 7/2 and very dark brown (10YR 2/2) ashy sand, white (10YR 8/2) and very dark brown (10YR 2/2) dry; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; 5 percent light gray (10YR 7/2) gravel-sized pumice; slightly alkaline (pH 7.6); abrupt wavy boundary.

2Bwb1—33 to 39 inches; dark brown (10YR 3/3) clay loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few fine and medium roots; many fine interstitial pores; neutral (pH 7.2); clear smooth boundary.

2Bwb2—39 to 47 inches; dark yellowish brown (10YR 4/4) gravelly clay loam, yellowish brown (10YR 5/4) dry; moderate coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; many fine interstitial pores; 20 percent basalt gravel; neutral (pH 7.2); clear smooth boundary.

2R—47 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 10 to 17 inches
Depth to bedrock: 40 to 60 inches or more
Depth to the buried horizon: 25 to 35 inches
Particle-size control section: Clay content—2 to 10 percent in the upper part and 10 to 30 percent in the lower part; pararock fragment content—5 to 30 percent in the upper part; rock fragment content—0 to 25 percent in the lower part

A horizon
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 3 or 4 dry
Texture—paragravelly ashy loamy sand
Clay content—2 to 10 percent
Pararock fragment content—10 to 30 percent paragravel
Organic matter content—2 to 7 percent

AC horizon
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—ashy loamy sand, ashy sand, paragravelly ashy loamy sand, or paragravelly ashy sand
Clay content—2 to 10 percent
Pararock fragment content—5 to 30 percent paragravel
Organic matter content—0.5 to 2.0 percent
Reaction—neutral or slightly alkaline

C horizon
Value—6 or 7 moist, 6 to 8 dry
Chroma—2 to 4 moist or dry
Texture—ashy loamy sand, ashy sand, paragravelly ashy loamy sand, or paragravelly ashy sand
Clay content—2 to 10 percent
Pararock fragment content—0 to 25 percent paragravel
Reaction—neutral or slightly alkaline

2Bwb horizon
Hue—7.5YR or 10YR
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry

Texture—loam, clay loam, or gravelly clay loam
Clay content—10 to 30 percent
Rock fragment content—0 to 25 percent gravel
Reaction—neutral or slightly alkaline

Sliptrack Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Depressions of lava plateaus
Parent material: Volcanic ash and alluvium derived from volcanic rock such as basalt
Slope range: 1 to 8 percent
Elevation: 4,600 to 5,100 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Durixerolls

Typical Pedon

Sliptrack cobbly ashy fine sandy loam in an area of rangeland, in map unit 600, Sliptrack-Oatmanflat complex, 0 to 4 percent slopes; Lake County, Oregon; about 1 mile southeast of Saddle Butte and about 2,400 feet south and 150 feet west of the northeast corner of section 23, T. 23 S., R. 18 E.; U.S. Geological Survey Last Chance Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 33 minutes, 58 seconds north and longitude 120 degrees, 30 minutes, 55 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) cobbly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; strong thick platy structure parting to weak thin platy; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and fine and few medium and coarse vesicular pores; 10 percent gravel, 5 percent cobbles, and 2 percent stones; neutral (pH 6.7); abrupt smooth boundary.

A2—3 to 11 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and fine interstitial and tubular pores; neutral (pH 7.0); clear smooth boundary.

Bt1—11 to 16 inches; brown (10YR 5/3) ashy sandy clay loam, dark brown (10YR 3/3) moist; strong medium subangular blocky structure parting to weak fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; 5 percent gravel and 5 percent cobbles; common faint clay films on faces of peds; slightly alkaline (pH 7.5); clear smooth boundary.

Bt2—16 to 22 inches; yellowish brown (10YR 5/4) ashy clay loam, dark yellowish brown (10YR 3/4) moist; weak medium prismatic structure parting to strong fine and medium angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine tubular pores; 5 percent gravel and 5 percent cobbles; common distinct clay films on faces of peds; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bqm—22 to 29 inches; light yellowish brown (10YR 6/4) cemented material, dark yellowish brown (10YR 3/4) moist; strong medium platy structure; very rigid;

indurated with secondary silica; 1-millimeter-thick opal coatings on top of plates and opal pendants on bottom of peds; abrupt smooth boundary.

Bqkm1—29 to 45 inches; light yellowish brown (10YR 6/4) cemented material, dark yellowish brown (10YR 4/4) moist; strong thick and medium platy structure; rigid; strongly cemented with secondary silica; slightly effervescent; secondary carbonates segregated in threads and disseminated throughout matrix; abrupt smooth boundary.

Bqkm2—45 to 60 inches; very pale brown (10YR 7/3) cemented material, dark yellowish brown (10YR 4/4) moist; moderate medium platy structure; extremely hard, extremely firm; weakly cemented and moderately cemented with secondary silica; slightly effervescent; secondary carbonates segregated in threads and disseminated throughout matrix.

Range in Characteristics

Mollic epipedon thickness: 7 to 16 inches
Depth to the duripan: 20 to 40 inches
Depth to bedrock: 40 to 60 inches or more
Particle-size control section: Clay content—27 to 35 percent by weighted average; rock fragment content—0 to 15 percent
Other features: Volcanic glass content—40 to 60 percent in coarse silt to fine sand fractions; lithology of fragments—basalt

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—stony ashy fine sandy loam, ashy very fine sandy loam, or cobbly ashy fine sandy loam
Clay content—12 to 17 percent
Rock fragment content—0 to 20 percent total, with 0 to 15 percent gravel, 0 to 10 percent cobbles, and 0 to 15 percent stones
Organic matter content—2 to 4 percent
Reaction—neutral or slightly alkaline

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy fine sandy loam
Clay content—12 to 18 percent
Rock fragment content—0 to 15 percent total, with 0 to 10 percent gravel and 0 to 5 percent cobbles
Organic matter content—2 to 4 percent
Reaction—neutral or slightly alkaline

Bt1 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy clay loam
Clay content—23 to 35 percent
Rock fragment content—0 to 15 percent total, with 0 to 10 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline

Bt2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist

Texture—ashy sandy clay loam or ashy clay loam
Clay content—30 to 38 percent
Rock fragment content—0 to 15 percent total, with 0 to 10 percent gravel and 0 to 5 percent cobbles
Reaction—slightly alkaline

Bqm, Bqkm1, and Bqkm2 horizons
Cementation—weakly cemented to indurated; at least one upper subhorizon is very strongly cemented or indurated

Snakepit Series

Depth class: Moderately deep to a duripan
Drainage class: Somewhat excessively drained
Landscape: Lava plateaus
Landform: Depressions of lava plateaus
Parent material: Eolian sand and alluvium derived from volcanic rock such as basalt or welded tuff
Slope range: 0 to 3 percent
Elevation: 4,570 to 5,200 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Sandy, mixed, frigid Cambidic Durixerolls

Typical Pedon

Snakepit loamy sand, 0 to 3 percent slopes, in an area of rangeland, in map unit 601, Lake County, Oregon; about 300 feet north and 1,200 feet east of the southwest corner of section 12, T. 32 S., R. 19 E.; U.S. Geological Survey Sharp Top 7.5-minute topographic quadrangle; latitude 42 degrees, 48 minutes, 22 seconds north and longitude 120 degrees, 25 minutes, 46 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and few fine roots; common fine and medium interstitial pores; neutral (pH 7.2); clear smooth boundary.
A2—3 to 11 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and few fine and medium roots; common fine and medium interstitial and tubular pores; slightly alkaline (pH 7.5); gradual smooth boundary.
A3—11 to 19 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few very fine, fine, and medium roots; common fine and medium interstitial and tubular pores; slightly alkaline (pH 7.8); gradual smooth boundary.
Bw—19 to 30 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine, fine, and medium roots; common fine interstitial pores and few fine tubular pores; slightly alkaline (pH 7.6); clear smooth boundary.
Bq—30 to 33 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; massive; hard, very firm, slightly sticky and nonplastic; few very fine roots; few very fine tubular pores; 40 percent very coarse, weakly cemented durinodes; slightly alkaline (pH 7.8); abrupt smooth boundary.

2Bkqm—33 to 42 inches; pale brown (10YR 6/3) duripan, brown (10YR 4/3) moist; massive; extremely hard, extremely firm; strongly cemented with secondary silica; common laminae of opal 1 to 3 millimeters in diameter in upper part of horizon; about 10 percent gravel and 25 percent cobbles cemented in matrix; strongly effervescent; secondary carbonates segregated as few medium coatings on opal laminae; strongly alkaline (pH 8.5); abrupt smooth boundary.

3Bkq—42 to 63 inches; light yellowish brown (10YR 6/4) loamy sand, dark yellowish brown (10YR 4/4) moist; massive; hard, firm and brittle, nonsticky and nonplastic; few fine interstitial pores; 15 percent very coarse, weakly cemented durinodes; strongly effervescent; secondary carbonates segregated as few coatings on durinodes; strongly alkaline (pH 8.6).

Range in Characteristics

Mollic epipedon thickness: 10 to 19 inches
Depth to the duripan: 20 to 35 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—4 to 8 percent by weighted average; rock fragment content—0 to 15 percent by weighted average
Lithology of fragments: Basalt and welded ashflow tuff

A1 horizon
Value—5 or 6 dry, 3 or 4 moist (value of 5 dry and 3 moist where the upper 7 inches is mixed)
Chroma—2 or 3 dry or moist
Clay content—4 to 6 percent
Rock fragment content—0 to 15 percent
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

A2 horizon
Chroma—2 or 3 dry or moist
Texture—loamy sand or cobbly loamy sand
Clay content—6 to 8 percent
Rock fragment content—0 to 20 percent total, with 0 to 10 percent gravel and 0 to 10 percent cobbles
Organic matter content—1 to 3 percent
Reaction—slightly alkaline or moderately alkaline

A3 horizon
Chroma—2 or 3 dry or moist
Texture—loamy sand or cobbly loamy sand
Clay content—6 to 8 percent
Rock fragment content—0 to 20 percent
Organic matter content—1 or 2 percent
Reaction—slightly alkaline or moderately alkaline

Bw horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—loamy sand or loamy fine sand
Clay content—6 to 10 percent
Rock fragment content—0 to 15 percent gravel
Reaction—slightly alkaline or moderately alkaline

Bq horizon
Value—3 or 4 moist
Chroma—2 or 3 dry or moist

Texture—loamy sand or sandy loam
Clay content—8 to 10 percent
Rock fragment content—0 to 15 percent gravel
Durinode content—10 to 40 percent very coarse, irregular, weakly cemented or moderately cemented durinodes
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 3 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

2Bkqm horizon
Hue—7.5YR or 10YR
Value—6 to 8 dry, 4 to 6 moist
Chroma—3 or 4 dry or moist
Cementation—moderately cemented or strongly cemented with secondary silica
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 4
Other feature—horizon consists of duripan that has formed in layers of alluvium with 20 to 35 percent rock fragments, mainly gravel and cobbles

3Bkq horizon
Hue—7.5YR or 10YR
Chroma—2 to 4 dry or moist
Texture—loamy sand or sandy loam
Clay content—6 to 12 percent
Rock fragment content—0 to 15 percent gravel
Durinode content—10 to 20 percent very coarse, irregular, weakly cemented or moderately cemented durinodes
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 10 millimhos per centimeter
Sodicity (sodium adsorption ratio)—2 to 8

Southcat Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins
Landform: Beach plains
Parent material: Eolian deposits and wave-reworked alluvium derived from mixed volcanic rock
Slope range: 0 to 10 percent
Elevation: 4,190 to 5,130 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Sandy, mixed, mesic Sodic Haplocambids

Typical Pedon

Southcat gravelly loamy sand, 0 to 10 percent slopes, in an area of rangeland, in map unit 602, Lake County, Oregon; about 8 miles north of the village of Paisley and east of the dunefield bordering Summer Lake; about 2,150 feet south and 1,800 feet east of the northwest corner of section 15, T. 32 S., R. 18 E.; U.S. Geological Survey

Loco Lake 7.5-minute topographic quadrangle; latitude 42 degrees, 47 minutes, 44 seconds north and longitude 120 degrees, 34 minutes, 30 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

An—0 to 4 inches; light brownish gray (10YR 6/2) gravelly loamy sand, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; few fine roots; few fine irregular pores; 20 percent gravel; very strongly alkaline (pH 9.2); abrupt smooth boundary.

Bwn1—4 to 8 inches; light gray (10YR 7/2) sandy loam, brown (10YR 4/3) moist; moderate thin platy structure parting to moderate very fine subangular blocky; hard, friable, slightly sticky and slightly plastic; common fine roots; common fine vesicular pores; 3 percent gravel; very strongly alkaline (pH 9.4); abrupt smooth boundary.

Bwn2—8 to 10 inches; very pale brown (10YR 7/3) sandy loam, dark yellowish brown (10YR 4/4) moist; weak very fine subangular blocky structure; hard, friable, slightly sticky and nonplastic; common fine and few medium roots; common fine irregular pores; 5 percent fine gravel; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

Bn1—10 to 14 inches; light gray (10YR 7/2) gravelly loamy sand, dark yellowish brown (10YR 4/4) moist; moderate thin platy structure; hard, firm, nonsticky and nonplastic; few fine roots; common fine irregular pores; 15 percent fine gravel; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

Bn2—14 to 19 inches; light gray (10YR 7/2) gravelly sandy loam, brown (10YR 4/3) moist; moderate very thin platy structure; slightly hard, friable, nonsticky and nonplastic; few fine roots; many fine interstitial pores; 30 percent gravel; few thin strata of pumice; very strongly alkaline (pH 9.6); abrupt smooth boundary.

Bn3—19 to 26 inches; brown (10YR 5/3) fine sand, brown (10YR 4/3) moist; moderate thin platy structure; hard, friable, nonsticky and nonplastic; few fine roots; few fine interstitial pores; slightly effervescent; 2 percent fine gravel; very strongly alkaline (pH 9.6); clear smooth boundary.

2C1—26 to 41 inches; dark grayish brown (10YR 4/2) sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few fine interstitial pores; 2 percent gravel; colors are lithochromic; common thin 1- to 2-millimeter-thick laminae of loamy sand 2 to 5 centimeters apart; very strongly alkaline (pH 9.6); clear smooth boundary.

2C2—41 to 62 inches; dark grayish brown (10YR 4/2) fine sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few fine interstitial pores; very strongly alkaline (pH 9.6).

Range in Characteristics

Depth to bedrock: More than 60 inches

Particle-size control section: Clay content—2 to 6 percent by weighted average; rock fragment content—5 to 15 percent by weighted average

Other features: The lithology of the fragments is volcanic rock such as basalt, tuff, and rhyolite. Some pedons have a buried A horizon. Some pedons may have thin laminae.

An horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—gravelly loamy sand or fine sand

Clay content—2 to 8 percent

Rock fragment content—0 to 25 percent gravel

Organic matter content—0.2 to 0.5 percent

Reaction—strongly alkaline or very strongly alkaline
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

Bwn horizon
Value—5 to 7 dry
Chroma—2 to 4 dry or moist
Texture—sandy loam or fine sandy loam
Clay content—5 to 18 percent
Rock fragment content—0 to 15 percent gravel
Durinode content—0 to 5 percent
Reaction—very strongly alkaline
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

Bn horizon
Value—5 to 7 dry
Chroma—2 to 4 dry or moist
Texture—loamy sand, gravelly loamy sand, gravelly sandy loam, fine sand, or sand
Clay content—2 to 12 percent
Rock fragment content—0 to 30 percent gravel
Reaction—very strongly alkaline
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

2C horizon
Value—4 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—fine sand, gravelly sandy loam, sand, or loamy sand
Clay content—2 to 5 percent
Rock fragment content—0 to 20 percent
Reaction—very strongly alkaline
Salinity (electrical conductivity)—4 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

Spiderhole Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Eolian material and colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 15 percent
Elevation: 4,660 to 5,600 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid, shallow Xeric Argidurids

Typical Pedon

Spiderhole very gravelly loamy sand in an area of rangeland, in map unit 605, Spiderhole complex, 2 to 15 percent slopes; Lake County, Oregon; about 900 feet north and 2,350 feet east of the southwest corner of section 11, T. 32 S., R. 19 E.;

U.S. Geological Survey Sharp Top 7.5-minute topographic quadrangle; latitude 42 degrees, 48 minutes, 27 seconds north and longitude 120 degrees, 26 minutes, 42 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 5/3) very gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; common fine and medium interstitial pores; 35 percent gravel and 10 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—3 to 6 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine and medium vesicular pores; 20 percent gravel and 5 percent cobbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bt—6 to 10 inches; pale brown (10YR 6/3) very cobbly sandy clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; common faint and few distinct clay films on faces of peds; 20 percent gravel and 15 percent cobbles; moderately alkaline (pH 8.4); clear smooth boundary.

Bkqm1—10 to 15 inches; light brown (7.5YR 6/3) duripan, brown (7.5YR 4/3) moist; strong medium platy structure; extremely hard, slightly rigid; strongly cemented with secondary silica; few very fine roots in fractures; few very fine tubular pores; slightly effervescent; secondary carbonates finely disseminated throughout; strongly alkaline (pH 8.6); clear smooth boundary.

Bkqm2—15 to 19 inches; very pale brown (10YR 7/3) duripan, brown (10YR 5/3) moist; strong thick platy structure; very rigid; indurated with secondary silica; thin laminar caps of opal on top of peds; strongly effervescent; secondary carbonates segregated as few medium coatings on bottom of peds; strongly alkaline (pH 8.8); abrupt smooth boundary.

Bkqm3—19 to 21 inches; light brownish gray (10YR 6/2) duripan, grayish brown (10YR 5/2) moist; strong very thick platy structure; very rigid; indurated with secondary silica; thin laminar caps of opal on top of peds; strongly effervescent; secondary carbonates segregated as common medium coatings on bottom of peds; strongly alkaline (pH 8.8); clear smooth boundary.

Bk—21 to 24 inches; pale brown (10YR 6/3) loamy coarse sand, brown (10YR 5/3) moist; massive; soft, slightly hard, nonsticky and nonplastic; strongly effervescent; secondary carbonates finely disseminated throughout; strongly alkaline (pH 9.0); abrupt smooth boundary.

R—24 inches; fractured, welded ashflow tuff.

Range in Characteristics

Depth to the duripan: 10 to 20 inches
Depth to bedrock: 20 to 28 inches
Particle-size control section: Clay content—10 to 18 percent by weighted average; rock fragment content—35 to 45 percent by weighted average
Other features: Lithology of fragments—welded ashflow tuff and basalt

A1 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loamy sand or very gravelly loamy sand
Clay content—4 to 10 percent
Rock fragment content—35 to 55 percent total, with 20 to 45 percent gravel and 0 to 25 percent cobbles

Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

A2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry, 2 to 4 moist
Texture—gravelly sandy loam, very cobbly sandy loam, gravelly loamy sand, or very cobbly loamy sand
Clay content—6 to 16 percent
Rock fragment content—25 to 45 percent total, with 20 to 35 percent gravel and 5 to 25 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bt horizon
Hue—7.5YR or 10YR
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—cobbly sandy clay loam, very gravelly sandy clay loam, very cobbly sandy loam, or very cobbly sandy clay loam
Clay content—14 to 28 percent
Rock fragment content—30 to 50 percent total, with 20 to 30 percent gravel and 10 to 20 percent cobbles
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bkqm horizon
Cementation—weakly cemented to strongly cemented in the upper part and very strongly cemented or indurated in the lower part

Bk horizon
Hue—7.5YR or 10YR
Value—6 or 7 dry, 5 or 6 moist
Texture—loamy coarse sand
Clay content—5 to 10 percent
Rock fragment content—0 to 10 percent gravel
Reaction—strongly alkaline or very strongly alkaline (pH as high as 9.6)
Calcium carbonate equivalent—3 to 5 percent
Salinity (electrical conductivity)—2 to 10 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 8

Stampede Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plateaus and fan remnants
Parent material: Eolian deposits and alluvium derived from mixed volcanic rock
Slope range: 1 to 5 percent
Elevation: 4,570 to 4,850 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Vertic Durixerolls

Typical Pedon

Stampede gravelly fine sandy loam, 1 to 5 percent slopes, in an area of rangeland, in map unit 606, Lake County, Oregon; about 300 feet south and 600 feet west of the northeast corner of section 11, T. 25 S., R. 22 E.; U.S. Geological Survey Tired Horse Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 25 minutes, 30 seconds north and longitude 120 degrees, 2 minutes, 12 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; brown (10YR 5/3) gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and nonplastic; many very fine, common fine, and few medium roots; common very fine and fine and many medium vesicular pores; 10 percent gravel, 5 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

A2—2 to 9 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and fine and few medium tubular pores; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bt1—9 to 17 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure parting to moderate fine angular blocky; hard, friable, moderately sticky and moderately plastic; few very fine and common fine and medium roots; few fine and medium tubular pores; few faint clay films on faces of peds; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

Bt2—17 to 22 inches; light yellowish brown (10YR 6/4) cobbly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure parting to moderate fine angular blocky; hard, firm, moderately sticky and very plastic; few very fine, fine, and medium roots; few fine and medium tubular pores; many distinct clay films lining pores; 5 percent gravel and 15 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bqkm—22 inches; very pale brown (10YR 7/4) cemented material, yellowish brown (10YR 5/4) moist; massive; brittle; indurated with silica; moderately alkaline (pH 8.2).

Range in Characteristics

Mollic epipedon thickness: 7 to 13 inches
Depth to the duripan: 20 to 37 inches
Particle-size control section: Clay content—35 to 50 percent; rock fragment content—5 to 25 percent
Other features: The lithology of the fragments is mixed volcanic rock. Noncemented soil material such as extremely gravelly loamy sand, gravelly sandy loam, or very gravelly sandy loam is below the duripan and extends to a depth of 80 inches or more.

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—gravelly fine sandy loam
Clay content—15 to 20 percent
Rock fragment content—15 to 25 percent total, with 10 to 20 percent gravel, 0 to 5 percent cobbles, and 0 to 5 percent stones

Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—sandy clay loam or gravelly clay loam
Clay content—21 to 30 percent
Rock fragment content—5 to 25 percent total, with 5 to 20 percent gravel and 0 to 5 percent cobbles
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

Bt horizon
Hue—10YR or 7.5YR
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—clay loam, clay, or cobbly clay loam
Clay content—35 to 50 percent
Rock fragment content—5 to 25 percent total, with 5 to 10 percent gravel and 0 to 15 percent cobbles
Reaction—slightly alkaline or moderately alkaline

Bqkm horizon
Reaction—slightly alkaline or moderately alkaline

Stauffer Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Lakebeds
Parent material: Eolian and lacustrine deposits derived from volcanic ash
Slope range: 0 to 2 percent
Elevation: 4,560 to 4,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Argixerolls

Typical Pedon

Stauffer ashy fine sandy loam in an area of rangeland, in map unit 452, Millenium-Stauffer-Raztack complex, 0 to 2 percent slopes; Lake County, Oregon; about 4,000 feet south and 3,400 feet west of the northeast corner of section 10, T. 24 S., R. 21 E.; U.S. Geological Survey Potato Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 30 minutes, 9 seconds north and longitude 120 degrees, 11 minutes, 17 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; many very fine, common fine, and few medium tubular pores; neutral (pH 7.2); clear smooth boundary.
A2—3 to 8 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to

moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine, many fine, and few medium interstitial and tubular pores; slightly alkaline (pH 7.5); clear smooth boundary.

Bt1—8 to 14 inches; grayish brown (10YR 5/2) ashy sandy clay loam, very dark grayish brown (10YR 3/2) moist; strong medium subangular blocky structure parting to weak fine angular blocky; hard, friable, moderately sticky and moderately plastic; common very fine and few fine and medium roots; few very fine, fine, and medium tubular pores; common faint clay films on faces of peds; slightly alkaline (pH 7.5); abrupt wavy boundary.

Bt2—14 to 26 inches; light brownish gray (10YR 6/2) ashy clay loam, dark grayish brown (10YR 4/2) moist; moderate medium prismatic structure parting to strong medium angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.5); clear wavy boundary.

Btq1—26 to 34 inches; light brownish gray (10YR 6/2) ashy sandy loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine tubular pores; common distinct clay films on faces of peds; 40 percent moderately cemented durinodes; slightly alkaline (pH 7.6); clear smooth boundary.

Btq2—34 to 38 inches; light brownish gray (10YR 6/2) ashy very fine sandy loam, dark grayish brown (10YR 4/2) moist; strong medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine tubular pores; few distinct clay films on faces of peds; 40 percent moderately cemented durinodes; slightly alkaline (pH 7.6); abrupt smooth boundary.

Btq3—38 to 45 inches; pale brown (10YR 6/3) ashy clay loam, brown (10YR 4/3) moist; moderate medium angular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine tubular pores; common distinct clay films on faces of peds; 5 percent moderately cemented durinodes; few fine prominent strong brown (7.5YR 5/6) relict masses of iron accumulation; slightly alkaline (pH 7.7); abrupt smooth boundary.

BCt—45 to 62 inches; pale brown (10YR 6/3) and light brownish gray (10YR 6/2), stratified ashy clay loam and ashy sandy loam, brown (10YR 4/3) and dark grayish brown (10YR 4/2) moist; strong fine prismatic structure parting to strong medium angular blocky; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine tubular pores; common distinct clay films on faces of peds; common fine prominent strong brown (7.5YR 5/6) relict masses of iron accumulation; slightly alkaline (pH 7.6); clear smooth boundary.

C—62 to 66 inches; light brownish gray (10YR 6/2) and strong brown (7.5YR 5/6) ashy sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many coarse prominent strong brown (7.5YR 5/6) relict masses of iron accumulation; slightly alkaline (pH 7.5).

Range in Characteristics

Mollic epipedon thickness: 7 to 14 inches, includes the Bt1 horizon in some pedons
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—20 to 30 percent by weighted average
Volcanic glass content: 35 to 95 percent in coarse silt to fine sand fractions

A horizon
Chroma—2 or 3 dry or moist
Texture—ashy fine sandy loam
Clay content—9 to 18 percent

Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bt1 horizon
Hue—10YR or 7.5YR
Texture—ashy sandy clay loam
Clay content—20 to 34 percent
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bt2 horizon
Hue—10YR or 7.5YR
Texture—ashy clay loam or ashy sandy clay loam
Clay content—27 to 35 percent
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Btq horizon
Texture—ashy sandy loam, ashy very fine sandy loam, or ashy clay loam
Clay content—12 to 30 percent
Durinode content—5 to 45 percent weakly cemented or moderately cemented durinodes
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

BCt horizon
Texture—stratified ashy sandy loam and ashy clay loam
Clay content—12 to 30 percent
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 6 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 6
Other feature—masses of iron accumulation that are relict redoximorphic concentrations in some pedons

C horizon
Chroma—2 to 6 dry, 2 or 3 moist
Texture—ashy sandy loam, ashy loam, ashy fine sandy loam, or ashy sandy clay loam
Clay content—10 to 24 percent
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 6 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 6
Other feature—masses of iron accumulation that are relict redoximorphic concentrations in some pedons

Steiger Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Volcanic ash and pumice over colluvium and residuum derived from volcanic rock such as basalt

Slope range: 0 to 65 percent
Elevation: 4,560 to 5,600 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 40 to 44 degrees F
Frost-free period: 10 to 50 days

Taxonomic classification: Ashy, glassy Xeric Vitricryands

Typical Pedon

Steiger ashy loamy coarse sand, cool, 0 to 3 percent slopes, in an area of forestland; in map unit 608, Lake County, Oregon; about 1,000 feet south and 900 feet west of the northeast corner of section 23, T. 24 S., R. 11 E.; U.S. Geological Survey Big Hole 7.5-minute topographic quadrangle; latitude 43 degrees, 29 minutes, 4 seconds north and longitude 121 degrees, 21 minutes, 18 seconds west; NAD 27. (Colors are for moist soil unless otherwise stated.)

Oi—0 to 1 inch; slightly decomposed plant material consisting of a layer of pine needles and litter.

A—1 to 4 inches; very dark grayish brown (10YR 3/2) ashy loamy coarse sand, brown (10YR 5/3) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 10 percent pumice paragravel; neutral (pH 6.8); clear wavy boundary.

Bw—4 to 12 inches; dark brown (10YR 3/3) paragravelly ashy loamy coarse sand, brown (10YR 5/3) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine, medium, and coarse roots; many very fine interstitial pores; 20 percent pumice paragravel; neutral (pH 7.0); clear wavy boundary.

C1—12 to 23 inches; very pale brown (10YR 8/3) very paragravelly ashy coarse sand, very pale brown (10YR 8/3) dry; single grain; loose, nonsticky and nonplastic; few medium roots; many very fine interstitial pores; 55 percent pumice paragravel; slightly alkaline (pH 7.4); gradual smooth boundary.

C2—23 to 45 inches; very dark brown (10YR 2/2) and light gray (10YR 7/2) ashy coarse sand, very dark brown (10YR 2/2) and very pale brown (10YR 8/2) dry; single grain; loose, nonsticky and nonplastic; few fine and medium roots; many very fine interstitial pores; 5 percent pumice paragravel; slightly alkaline (pH 7.6); abrupt wavy boundary.

2Bwb—45 to 60 inches; dark brown (10YR 3/3) stony sandy loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few fine and medium roots; many fine interstitial pores; 15 percent basalt gravel and 15 percent basalt stones; neutral (pH 7.2).

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to the buried horizon: 40 to 60 inches
Particle-size control section: Clay content—1 to 5 percent; pararock fragment content—5 to 35 percent by weighted average

A horizon
Value—3 or 4 moist, 5 or 6 dry
Chroma—2 or 3 moist or dry
Texture—ashy loamy coarse sand
Clay content—1 to 5 percent
Pararock fragment content—0 to 10 percent paragravel
Organic matter content—2 to 7 percent
Reaction—moderately acid to neutral

Bw horizon
Value—3 or 4 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Texture—ashy loamy coarse sand or paragravelly ashy loamy coarse sand
Clay content—1 to 5 percent
Pararock fragment content—5 to 30 percent paragravel
Reaction—slightly acid or neutral

C horizon
Value—6 to 8 moist or dry
Chroma—2 to 4 moist or dry
Texture—very paragravelly ashy coarse sand, ashy coarse sand, or paragravelly ashy coarse sand
Clay content—2 to 5 percent
Pararock fragment content—5 to 60 percent
Reaction—slightly acid to slightly alkaline

2Bwb horizon
Hue—10YR or 7.5YR
Value—3 or 4 moist, 5 or 6 dry
Chroma—3 or 4 moist or dry
Texture—loam, sandy loam, stony sandy loam, or gravelly loam
Clay content—5 to 18 percent
Rock fragment content—0 to 30 percent total, with 0 to 20 percent gravel, 0 to 5 percent cobbles, and 0 to 25 percent stones
Reaction—neutral

Suckerflat Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus, lava plains, and hillslopes
Parent material: Volcanic ash and slope alluvium or colluvium derived from volcanic rock such as basalt or tuff breccia
Slope range: 0 to 40 percent
Elevation: 4,300 to 5,230 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Lithic Haploxerolls

Typical Pedon

Suckerflat cobbly ashy loam, 2 to 10 percent slopes, in an area of rangeland, in map unit 614; Lake County, Oregon; about 1,900 feet north and 400 feet west of the southeast corner of section 9, T. 28 S., R. 17 E.; U.S. Geological Survey Christmas Valley 7.5-minute topographic quadrangle; latitude 43 degrees, 9 minutes, 21 seconds north and longitude 120 degrees, 42 minutes, 10 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; grayish brown (10YR 5/2) cobbly ashy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and few medium and coarse roots; common fine vesicular pores; 3 percent gravel, 10 percent cobbles, and 3 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

A2—3 to 8 inches; brown (10YR 5/3) cobbly ashy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and few medium and coarse roots; common very fine interstitial pores; 3 percent gravel, 10 percent cobbles, and 3 percent stones; slightly alkaline (pH 7.8); clear smooth boundary.

Bw—8 to 18 inches; brown (10YR 5/3) cobbly ashy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and few medium and coarse roots; common very fine interstitial pores; about 5 percent fine gravel, 10 percent cobbles, and 3 percent stones; slightly alkaline (pH 7.8); abrupt smooth boundary.

2R—18 inches; basalt; widely spaced fractures with secondary silica and carbonate salts; few fine roots in fractures.

Range in Characteristics

Mollic epipedon thickness: 7 to 14 inches
Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—10 to 24 percent by weighted average; rock fragment content—0 to 20 percent
Volcanic glass content: 30 to 60 percent in coarse silt to very coarse sand fractions

A horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 to 3 dry or moist
Texture—ashy loamy sand, cobbly ashy fine sandy loam, ashy loamy fine sand, cobbly ashy loam, or stony ashy sandy loam
Clay content—4 to 18 percent
Rock fragment content—0 to 35 percent total, with 0 to 15 percent gravel, 0 to 15 percent cobbles, and 0 to 20 percent stones
Organic matter content—1 to 3 percent
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bw horizon
Value—5 or 6 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand, cobbly ashy loam, or ashy sandy loam
Clay content—8 to 18 percent
Rock fragment content—0 to 20 percent total, with 0 to 10 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Swalesilver Series

Depth class: Very deep to bedrock
Drainage class: Somewhat poorly drained
Landscape: Lava plateaus and basins
Landform: Closed depressions on lava plateaus and lake terraces
Parent material: Alluvial and lacustrine deposits derived from mixed volcanic rock with an influence of volcanic ash
Slope range: 0 to 2 percent
Elevation: 4,310 to 6,220 feet
Mean annual precipitation: 8 to 12 inches

Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine, smectitic, frigid Aquic Palexeralfs

Typical Pedon

Swalesilver loam, 0 to 1 percent slopes, in an area of rangeland, in map unit 620, Lake County, Oregon; about 2,350 feet north and 850 feet west of the southeast corner of section 24, T. 31 S., R. 23 E.; U.S. Geological Survey Sagebrush Knoll 7.5-minute topographic quadrangle; latitude 42 degrees, 52 minutes, 12 seconds north and longitude 119 degrees, 56 minutes, 46 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; light gray (10YR 7/2) loam, brown (10YR 4/3) moist; moderate medium platy structure parting to weak fine granular; slightly hard, friable, moderately sticky and moderately plastic; common fine roots; few fine vesicular pores; neutral (pH 7.0); abrupt smooth boundary.

2Bt1—4 to 9 inches; brown (10YR 4/3) clay, dark brown (10YR 3/3) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, firm, moderately sticky and moderately plastic; common fine roots; few fine interstitial pores; common distinct continuous clay films; upper 1 centimeter of horizon has clean silt coatings on faces of peds; slightly alkaline (pH 7.6); clear smooth boundary.

2Bt2—9 to 16 inches; brown (10YR 5/3) clay, brown (10YR 4/3) moist; moderate fine angular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine roots; few fine interstitial pores; common faint continuous clay films on faces of peds; slightly alkaline (pH 7.8); gradual smooth boundary.

3Bk—16 to 38 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few fine roots; common fine interstitial and tubular pores; strongly effervescent; secondary carbonates segregated as common filaments or threads; moderately alkaline (pH 8.2); clear smooth boundary.

3BC—38 to 60 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; hard, friable, very sticky and moderately plastic; few fine roots; few fine interstitial pores; moderately alkaline (pH 8.0).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—40 to 60 percent by weighted average
Depth to abrupt textural change: 4 to 12 inches
Depth to water table: At the surface to a depth of 6 inches below the surface at some time during February through May (perched); as high as 12 inches above the surface at some time during March through May (frequent ponding)

A horizon
Value—6 or 7 dry, 3 to 5 moist
Chroma—1 to 3 dry or moist
Texture—loam or silt loam
Clay content—15 to 25 percent
Reaction—slightly acid to slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

2Bt horizon
Hue—10YR or 2.5Y
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist

Texture—clay, silty clay, or clay loam
Clay content—35 to 65 percent
Reaction—slightly alkaline or moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

3Bk and 3BC horizons
Hue—10YR or 2.5Y
Value—5 to 7 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Texture—silt loam, silty clay loam, loam, or clay loam
Clay content—22 to 40 percent
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 4

Teguro Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Hills and lava plateaus
Landform: Hillslopes and lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 20 percent
Elevation: 4,630 to 6,310 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy, mixed, superactive, frigid Lithic Argixerolls

Typical Pedon

Teguro cobbly loam, 2 to 20 percent slopes, in an area of rangeland, in map unit 622, Lake County, Oregon; about 1,100 feet east and 300 feet south of the southwest corner of section 31, T. 32 S., R. 23 E.; U.S. Geological Survey Commodore Ridge 7.5-minute topographic quadrangle; latitude 42 degrees, 44 minutes, 50 seconds north and longitude 120 degrees, 3 minutes, 27 seconds west. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; grayish brown (10YR 5/2) cobbly loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to moderate very fine granular; soft, very friable, nonsticky and slightly plastic; few very fine roots; common very fine and fine tubular pores; 10 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.5); abrupt smooth boundary.

A2—2 to 8 inches; dark grayish brown (10YR 4/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to moderate very fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine and fine tubular pores; 10 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.5); clear smooth boundary.

Bt—8 to 15 inches; brown (7.5YR 4/3) clay loam, dark brown (7.5YR 3/3) moist; moderate fine subangular blocky structure parting to strong fine and medium granular; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine, medium, and coarse roots; common very fine and fine tubular pores; 5 percent gravel and 5 percent cobbles; common faint and distinct continuous clay films on faces of peds; slightly alkaline (pH 7.5); abrupt wavy boundary.

R—15 inches; welded tuff.

Range in Characteristics

Mollic epipedon thickness: 7 to 12 inches, includes all or the upper part of the Bt horizon
Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—25 to 35 percent; rock fragment content—10 to 35 percent
Reaction: Neutral or slightly alkaline

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—cobbly loam, gravelly loam, or loam
Clay content—10 to 16 percent
Rock fragment content—0 to 30 percent total, with 0 to 25 percent gravel and 0 to 15 percent cobbles
Organic matter content—2 to 4 percent

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—cobbly loam
Clay content—10 to 18 percent
Rock fragment content—15 to 30 percent total, with 5 to 15 percent gravel and 10 to 15 percent cobbles
Organic matter content—1 to 3 percent

Bt horizon
Hue—10YR or 7.5YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—3 or 4 dry, 2 to 4 moist
Texture—gravelly loam, clay loam, gravelly clay loam, or cobbly clay loam
Clay content—25 to 35 percent
Rock fragment content—10 to 35 percent total, with 5 to 25 percent gravel and 5 to 20 percent cobbles

Characteristics Outside Range of Series

The rock fragment content in the Bt horizon ranges to less than 15 percent.

Thompsoncabin Series

Depth class: Shallow to bedrock
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Mixed eolian deposits and colluvium and residuum derived from volcanic rock such as basalt
Slope range: 15 to 70 percent
Elevation: 4,260 to 5,860 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Natrargids

Typical Pedon

Thompsoncabin extremely stony sandy loam in an area of rangeland, in map unit 624, Thompsoncabin, extremely bouldery-Thompsoncabin-Rock outcrop complex, 15 to 70 percent slopes, Lake County, Oregon; at the mouth of Cat Camp Draw; about 2,600 feet east and 1,800 feet south of the northwest corner of section 9, T. 30 S., R. 18 E.; U.S. Geological Survey Diablo Peak 7.5-minute topographic quadrangle; latitude 42 degrees, 59 minutes, 10 seconds north and longitude 120 degrees, 35 minutes, 34 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

An—0 to 3 inches; pale brown (10YR 6/3) extremely stony sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium granular structure; soft, friable, nonsticky and nonplastic; few very fine and fine roots; common fine and medium interstitial and tubular pores; 30 percent gravel, 20 percent cobbles, 20 percent stones, and 5 percent boulders; strongly effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

Btkn1—3 to 7 inches; pale brown (10YR 6/3) extremely cobbly sandy clay loam, brown (10YR 4/3) moist; moderate fine columnar structure parting to weak fine angular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common fine and medium interstitial and tubular pores; common faint continuous clay films on faces of peds; 30 percent pebbles, 20 percent cobbles, and 10 percent stones; secondary carbonates segregated as few fine coatings on faces of peds and bottom of gravel; strongly effervescent; very strongly alkaline (pH 9.6); clear irregular boundary.

Btkn2—7 to 10 inches; light brown (7.5YR 6/3) extremely cobbly clay loam, brown (7.5YR 4/3) moist; moderate fine angular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common fine and medium interstitial and tubular pores; common distinct continuous clay films on faces of peds; 35 percent gravel, 30 percent cobbles, and 10 percent stones; secondary carbonates segregated as few fine coatings on faces of peds; violently effervescent; very strongly alkaline (pH 9.6); clear irregular boundary.

Btkn3—10 to 14 inches; light brown (7.5YR 6/4) extremely cobbly clay loam, brown (7.5YR 4/4) moist; moderate fine angular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common fine and medium interstitial and tubular pores; common distinct continuous clay films on faces of peds; 35 percent gravel, 30 percent cobbles, and 10 percent stones; secondary carbonates segregated as few fine coatings on faces of peds; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

R—14 inches; fractured basalt.

Range in Characteristics

Depth to bedrock: 10 to 20 inches
Particle-size control section: Clay content—25 to 35 percent; rock fragment content—60 to 80 percent
Reaction: Strongly alkaline or very strongly alkaline

An horizon
Value—6 or 7 dry, 4 moist
Chroma—2 or 3 dry or moist
Texture—extremely stony sandy loam, extremely cobbly fine sandy loam, or very stony sandy loam

Clay content—10 to 18 percent
Rock fragment content—35 to 80 percent total, with 15 to 40 percent gravel, 5 to 50 percent cobbles, 5 to 30 percent stones, and 0 to 5 percent boulders
Organic matter content—0.2 to 0.5 percent
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30

Btkn horizon
Hue—10YR or 7.5YR
Value—6 or 7 dry, 4 moist
Chroma—3 or 4 dry or moist
Texture—extremely cobbly sandy clay loam or extremely cobbly clay loam
Clay content—25 to 35 percent
Rock fragment content—60 to 80 percent total, with 30 to 45 percent gravel, 20 to 30 percent cobbles, and 0 to 10 percent stones
Calcium carbonate equivalent—2 to 8 percent
Salinity (electrical conductivity)—4 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 45
Other features—strongly effervescent or violently effervescent

Thornlake Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Lakebeds
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 5 percent
Elevation: 4,280 to 4,400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Sodic Xeric Haplocambids

Typical Pedon

Thornlake ashy silt loam in an area of rangeland, in map unit 628, Thornlake complex, 0 to 2 percent slopes, Lake County, Oregon; in Christmas Lake Valley, about 6 miles east of the town of Christmas Valley; about 3,700 feet north and 1,550 feet west of the southeast corner of section 10, T. 27 S., R. 18 E.; U.S. Geological Survey Fandango Canyon 7.5-minute topographic quadrangle; latitude 43 degrees, 14 minutes, 52 seconds north and longitude 120 degrees, 34 minutes, 8 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 7 inches; light brownish gray (10YR 6/2) ashy silt loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine vesicular pores; moderately alkaline (pH 8.2); clear wavy boundary.
Bn—7 to 25 inches; very pale brown (10YR 7/4) ashy silt loam, yellowish brown (10YR 5/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; common very fine and fine vesicular pores; slightly effervescent; moderately alkaline (pH 8.3); clear smooth boundary.
Bkn—25 to 57 inches; light brownish gray (10YR 6/2) ashy sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic;

few fine and medium roots; few fine tubular pores; finely disseminated secondary carbonates in matrix; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

C—57 to 61 inches; light brownish gray (10YR 6/2) ashy loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few medium roots; few fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6)

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to base of cambic horizon: 10 to 26 inches
Particle-size control section: Clay content—15 to 25 percent

A horizon
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy silt loam or ashy sandy loam
Clay content—8 to 25 percent
Organic matter content—0.2 to 0.4 percent
Reaction—moderately alkaline or strongly alkaline
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

Bn horizon
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Texture—ashy loam or ashy silt loam
Clay content—15 to 25 percent
Reaction—moderately alkaline to very strongly alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—1 or 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

Bkn and C horizons
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam, ashy loam, ashy silt loam, or ashy loamy sand
Clay content—5 to 25 percent
Reaction—moderately alkaline to very strongly alkaline
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 80
Calcium carbonate equivalent—1 to 9 percent
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions

Taxadjunct Features

The Thornlake soils in map units 629 and 630 are a taxadjunct to the Thornlake series. These soils have durinodic features and a mesic soil temperature regime.

Toll Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Basins
Landform: Fan piedmonts, alluvial fans, and dunes
Parent material: Alluvium and eolian sand deposits derived from mixed volcanic rock
Slope range: 2 to 20 percent
Elevation: 4,320 to 4,800 feet

Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Mixed, mesic Xeric Torripsamments

Typical Pedon

Toll gravelly loamy sand, 2 to 20 percent slopes, in an area of rangeland, in map unit 636, Lake County, Oregon; about 500 feet south and 700 feet west of the southeast corner of section 19, T. 29 S., R. 22 E.; U.S. Geological Survey Poverty Basin North 7.5-minute topographic quadrangle; latitude 43 degrees, 2 minutes, 46 seconds north and longitude 120 degrees, 9 minutes, 11 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 15 inches; grayish brown (10YR 5/2) gravelly loamy sand, dark yellowish brown (10YR 3/4) moist, single grain; loose, nonsticky and nonplastic; many very fine and few fine roots; many very fine interstitial pores and few fine tubular pores; 20 percent gravel; slightly alkaline (pH 7.5); clear smooth boundary.

C—15 to 40 inches; grayish brown (10YR 5/2) loamy sand, dark yellowish brown (10YR 3/4) moist; weak very fine and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; many very fine interstitial pores and few fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.6), clear smooth boundary.

Cq—40 to 60 inches; light brownish gray (10YR 6/2) gravelly coarse sand, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 20 percent gravel; 20 percent durinodes; slightly effervescent; slightly alkaline; (pH 7.6).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—3 to 8 percent; rock fragment content—0 to 10 percent by weighted average
Reaction: Neutral or slightly alkaline

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—gravelly loamy sand or loamy sand
Clay content—3 to 10 percent
Rock fragment content—0 to 30 percent
Organic matter content—0.2 to 0.6 percent

C horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—loamy sand or coarse sand
Clay content—3 to 10 percent
Rock fragment content—0 to 10 percent

Cq horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly coarse sand, gravelly loamy sand, or gravelly coarse sand
Clay content—2 to 10 percent
Rock fragment content—15 to 30 percent
Calcium carbonate equivalent—0 to 2 percent

Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Characteristics Outside Range of Series

The rock fragment content is 0 to 10 percent in the particle-size control section. A Cq horizon with durinodes is present. The frost-free period is 80 to 100 days.

Tonor Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Lakebeds
Parent material: Lacustrine deposits derived from volcanic ash
Slope range: 0 to 3 percent
Elevation: 4,280 to 4,580 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Sodic Xeric Haplocambids

Typical Pedon

Tonor ashy silt loam, 0 to 1 percent slopes, in an area of rangeland, in map unit 638, Lake County, Oregon; in the southeastern part of Fort Rock Valley; about 2,775 feet east and 330 feet north of the southwest corner of section 28, T. 27 S., R. 16 E.; U.S. Geological Survey Thorn Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 11 minutes, 36 seconds north and longitude 120 degrees, 49 minutes, 40 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; light brownish gray (10YR 6/2) ashy silt loam, dark brown (10YR 3/3) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine and fine roots; many fine vesicular pores; moderately alkaline (pH 8.0); clear smooth boundary.

Bw—3 to 11 inches; pale brown (10YR 6/3) ashy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine, fine, and medium roots; many very fine interstitial pores; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bkn1—11 to 23 inches; pale brown (10YR 6/3) ashy loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine and medium roots; many very fine interstitial pores; finely disseminated secondary carbonates in matrix; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bkn2—23 to 43 inches; light gray (10YR 7/2) ashy sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; hard, firm, nonsticky and nonplastic; few very fine roots; many fine interstitial pores; finely disseminated secondary carbonates in matrix; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

2C—43 to 60 inches; very pale brown (10YR 8/2) very paragravelly ashy silt loam, light gray (10YR 7/2) moist; very fine and fine angular blocky structure; few very fine roots along fractures; many very fine interstitial pores; about 50 percent weakly cemented paragravel; strongly effervescent; fine-earth fraction assumed to be high in content of diatoms and very high in content of volcanic glass; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—15 to 25 percent
Depth to identifiable secondary carbonates: 10 to 15 inches
Other features: Depth to the horizons that have weakly cemented pararock fragments is 40 to 60 inches. The source of the volcanic ash is ancestral Mt. Mazama.

A horizon
Value—5 or 6 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam or ashy silt loam
Clay content—10 to 20 percent
Organic matter content—0.2 to 0.5 percent
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions
Reaction—moderately alkaline

Bw horizon
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy loam or ashy silt loam
Clay content—10 to 20 percent
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—4 to 13
Effervescence—slightly effervescent to violently effervescent

Bkn horizon
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam, ashy loam, or ashy silt loam
Clay content—15 to 25 percent
Volcanic glass content—30 to 60 percent in coarse silt to fine sand fractions
Reaction—strongly alkaline or very strongly alkaline (pH as high as 10.0)
Calcium carbonate equivalent—5 to 15 percent
Salinity (electrical conductivity)—2 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 30
Effervescence—strongly effervescent or violently effervescent

2C horizon
Texture—very paragravelly ashy silt loam or very parachannery ashy silt loam
Clay content—15 to 25 percent
Pararock fragment content—35 to 60 percent paragravel or parachanners
Volcanic glass content—40 to 80 percent in coarse silt to fine sand fractions
Reaction—moderately alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—2 to 4 millimhos per centimeter
Effervescence—slightly effervescent to violently effervescent
Other features—pararock fragments consist of weakly cemented silty lacustrine deposits that are fractured, most are stable in water and will not slake after air-drying and soaking in water for at least 1 hour, and assumed to be high in content of diatom grains and volcanic glass

Tuffcabin Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Beach ridges
Parent material: Eolian deposits over lacustrine deposits derived from volcanic ash and pumice
Slope range: 1 to 10 percent
Elevation: 4,300 to 4,330 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Haploxerolls

Typical Pedon

Tuffcabin ashy sandy loam, 1 to 10 percent slopes, in an area of rangeland, in map unit 639; Lake County, Oregon; about 2,200 feet south and 1,200 feet west of the northeast corner of section 14, T. 27 S., R. 14 E.; U.S. Geological Survey Silverlake 7.5-minute topographic quadrangle; latitude 43 degrees, 13 minutes, 45 seconds north and longitude 121 degrees, 1 minute, 8 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 5 inches; grayish brown (2.5Y 5/2) ashy sandy loam, very dark gray (10YR 3/1) moist; weak medium subangular blocky structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; many very fine roots; few fine tubular pores; slightly alkaline (pH 7.6); clear smooth boundary.

A2—5 to 19 inches; grayish brown (10YR 5/2) ashy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine and common medium and coarse roots; many very fine tubular pores; slightly alkaline (pH 7.4); clear smooth boundary.

A3—19 to 23 inches; grayish brown (10YR 5/2) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine and common medium and coarse roots; many very fine tubular pores; distinct very thin eolian laminae; strongly effervescent; about 10 percent fine (2 to 5 millimeters in size) pumice paragravel; slightly alkaline (pH 7.4); clear smooth boundary.

Bw—23 to 30 inches; light brownish gray (10YR 6/2) ashy sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine and common medium roots; common fine interstitial pores; common distinct very thin eolian laminae; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

2Btnb—30 to 46 inches; grayish brown (10YR 5/2) ashy clay loam, dark grayish brown (10YR 4/2) moist; weak medium prismatic structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; many very fine tubular pores; common faint clay films lining pores; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

3Bqkmb—46 to 54 inches; white (10YR 8/1) cemented material, grayish brown (2.5Y 5/2) moist; strong very thick platy structure; very hard, extremely firm; moderately cemented with opaline silica; few very fine roots in fractures between plates; common faint opal coatings lining pores and common fine and medium opal pendants on bottom of plates; strongly effervescent; secondary carbonates segregated as few fine coatings on bottom of plates; very strongly alkaline (pH 9.2); clear smooth boundary.

3Ckb—54 to 62 inches; light gray (10YR 7/1) ashy loam, dark gray (10YR 4/1) moist; massive; slightly hard, friable, slightly sticky and nonplastic; secondary carbonates segregated as few fine masses; strongly effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Mollic epipedon thickness: 7 to 23 inches
Depth to the duripan: 40 to 60 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—18 to 24 percent by weighted average; volcanic glass content—75 to 100 percent in coarse silt to very coarse sand fractions

A horizon
Hue—10YR or 2.5Y
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—ashy sandy loam (A1 horizon) and ashy loam or ashy sandy loam (A2 and A3 horizons)
Clay content—10 to 15 percent (A1 horizon); 12 to 20 percent (A2 and A3 horizons)
Organic matter content—1 or 2 percent
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bw horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—1 to 3 dry or moist
Texture—ashy sandy loam or ashy loam
Clay content—12 to 20 percent
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

2Btnb horizon
Hue—10YR or 2.5Y
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy loam or ashy clay loam
Clay content—20 to 35 percent
Reaction—moderately alkaline to very strongly alkaline (pH as high as 9.6)
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 13

3Bqkmb horizon
Hue—10YR or 2.5Y
Value—6 to 8 dry, 4 or 5 moist
Chroma—1 to 3 dry or moist
Cementation—moderately cemented or strongly cemented

3Ckb horizon
Value—6 to 8 dry, 3 to 5 moist
Chroma—1 to 3 dry or moist

Texture—ashy fine sandy loam, ashy sandy loam, or ashy loam
Clay content—5 to 20 percent
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—1 to 4 percent
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 13

Tumtum Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Basins
Landform: Fan remnants and lake terraces
Parent material: Old alluvium derived from mixed volcanic rock
Slope range: 5 to 15 percent
Elevation: 4,260 to 5,160 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy, mixed, superactive, mesic, shallow Typic Argidurids

Typical Pedon

Tumtum cobbly loam in an area of rangeland, in map unit 267, Deppy-Tumtum complex, 5 to 15 percent slopes, Lake County, Oregon; about 0.5 mile south of Black Canyon; in the southwest corner of the southwest corner of section 2, T. 36 S., R. 28 E.; U.S. Geological Survey Beatys Butte NW 7.5-minute topographic quadrangle; latitude and longitude data not available. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine vesicular pores; 15 percent gravel and 10 percent cobbles; moderately alkaline (pH 7.9); clear wavy boundary.

Bt—3 to 14 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; common very fine and fine roots; many very fine and fine irregular pores; common faint clay films on faces of peds; 10 percent gravel; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bkqm—14 to 22 inches; very pale brown (10YR 7/4) cemented material, dark yellowish brown (10YR 4/6) moist; massive with thick plates; indurated with secondary silica; slightly effervescent; 40 percent gravel; clear wavy boundary.

2Ck—22 to 60 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 3/6) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; many very fine irregular pores; violently effervescent; disseminated carbonates; 45 percent gravel; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to the duripan: 9 to 18 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—25 to 35 percent by weighted average; rock fragment content—5 to 15 percent by weighted average
Reaction: Moderately alkaline throughout

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—cobbly loam
Clay content—20 to 27 percent
Rock fragment content—15 to 35 percent total, with 5 to 15 percent gravel and 10 to 25 percent cobbles
Organic matter content—0.3 to 0.5 percent

Bt horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—clay loam
Clay content—27 to 35 percent
Rock fragment content—0 to 10 percent gravel

2Ck horizon
Texture—gravelly sandy loam or very gravelly sandy loam
Clay content—5 to 15 percent
Rock fragment content—15 to 50 percent gravel
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Turpin Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Lake terraces
Parent material: Lacustrine deposits derived from mixed volcanic rock
Slope range: 0 to 15 percent
Elevation: 4,250 to 4,900 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Sodic Xeric Haplocambids

Typical Pedon

Turpin very fine sandy loam, 0 to 3 percent slopes; in map unit 641, Lake County, Oregon; about 100 feet north and 2,100 feet west of the southeast corner of section 10, T. 29 S., R. 23 E.; U.S. Geological Survey Venator Canyon 7.5-minute topographic quadrangle; latitude 43 degrees, 3 minutes, 47 seconds north and longitude 119 degrees, 58 minutes, 44 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark brown (10YR 3/3) moist; moderate thick platy structure parting to moderate very fine and fine granular; soft, very friable, nonsticky and slightly plastic; common very fine roots; few very fine vesicular pores; strongly effervescent; carbonates are disseminated; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bn1—3 to 10 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; common very fine and few fine and medium roots; common very fine and fine tubular pores; violently effervescent; carbonates are disseminated; strongly alkaline (pH 8.9); clear smooth boundary.

Bn2—10 to 18 inches; light gray (10YR 7/2) loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; common very fine and few fine, medium, and coarse roots; common very fine and fine tubular pores; violently effervescent; carbonates are disseminated; very strongly alkaline (pH 9.4); clear smooth boundary.

BCn1—18 to 24 inches; light gray (10YR 7/2) loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few very fine tubular pores; strongly effervescent; carbonates are disseminated; weakly cemented lacustrine material; very strongly alkaline (pH 9.4); clear smooth boundary.

BCn2—24 to 35 inches; light gray (10YR 7/2) clay loam, brown (10YR 5/3) moist; massive; hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few very fine tubular pores; few fine and medium distinct brownish yellow (10YR 6/6) relict redoximorphic iron concentrations; moderately cemented lacustrine material; common fine and medium dark gray iron stains on faces of peds; strongly effervescent; carbonates are disseminated; very strongly alkaline (pH 9.4); clear smooth boundary.

Cn1—35 to 45 inches; light gray (10YR 7/2) clay loam, brown (10YR 5/3) moist; massive; very hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; common very fine and fine tubular pores; few fine and medium distinct irregular brownish yellow (10YR 6/6) relict redoximorphic iron concentrations; common fine and medium dark gray iron stains on faces of peds; moderately cemented lacustrine material; slightly effervescent; disseminated carbonates; very strongly alkaline (pH 9.4); clear smooth boundary.

Cn2—45 to 60 inches; light gray (10YR 7/2) and white (10YR 8/1) loam, brown (10YR 5/3) and light gray (10YR 7/2) moist; massive; very hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine and fine tubular pores; moderately cemented lacustrine material; slightly effervescent; disseminated carbonates; very strongly alkaline (pH 9.4).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—20 to 35 percent

A horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—fine sandy loam, very fine sandy loam, loam, sandy clay loam, or sandy loam
Clay content—5 to 33 percent
Organic matter content—0.4 to 1.0 percent
Reaction—slightly alkaline to very strongly alkaline
Calcium carbonate equivalent—0 to 10 percent
Salinity (electrical conductivity)—1 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 50

Bn horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3 dry, 2 to 4 moist
Texture—loam, clay loam, or sandy clay loam

Clay content—12 to 35 percent
Reaction—strongly alkaline or very strongly alkaline
Calcium carbonate equivalent—1 to 10 percent
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—100 to 200

BCn and Cn horizons
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 or 3 dry, 2 to 4 moist
Texture—sandy clay loam, clay loam, fine sandy loam, or loam
Clay content—10 to 35 percent
Reaction—very strongly alkaline
Calcium carbonate equivalent—2 to 10 percent
Salinity (electrical conductivity)—8 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—200 to 300

Characteristics Outside Range of Series

Reaction ranges to slightly alkaline in the A horizon.

Taxadjunct Features

The Turpin soils in map unit 440 are a taxadjunct to the Turpin series. These soils have a sandy particle-size control section.

Vitale Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus, mountains, hills
Landform: Dissected lava plateaus, mountain slopes, and hillslopes
Parent material: Colluvium and residuum derived from volcanic rock such as rhyolite, basalt, or welded rhyolitic tuff
Slope range: 5 to 20 percent
Elevation: 4,790 to 6,030 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Typic Argixerolls

Typical Pedon

Vitale very cobbly sandy loam, 5 to 20 percent slopes, in an area of rangeland, in map unit 650, Lake County, Oregon; about 1,400 feet south and 1,300 feet west of the northeast corner of section 26, T. 26 S., R. 23 E.; U.S. Geological Survey Wagontire Mountain West 7.5-minute topographic quadrangle; latitude 43 degrees, 17 minutes, 32 seconds north and longitude 119 degrees, 55 minutes, 12 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 5/3) very cobbly sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and nonplastic; many very fine, common fine, and few medium roots; common very fine, fine, and medium vesicular pores; 20 percent gravel, 25 percent cobbles, and 10 percent stones; neutral (pH 7.2); clear smooth boundary.

A2—3 to 14 inches; brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; few very fine and medium and common fine interstitial pores; 20 percent gravel, 35 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

Bt1—14 to 22 inches; pale brown (10YR 6/3) very cobbly clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure parting to moderate fine angular blocky; hard, friable, moderately sticky and moderately plastic; few very fine and medium and common fine roots; few very fine and medium and common fine interstitial pores; common distinct clay films on faces of peds; 20 percent gravel, 30 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

Bt2—22 to 24 inches; light yellowish brown (10YR 6/4) extremely cobbly clay loam, dark yellowish brown (10YR 4/4) moist; weak very fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine roots; many fine interstitial pores; few faint clay films on faces of peds; 20 percent gravel, 40 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.8); abrupt wavy boundary.

R—24 inches; welded tuff.

Range in Characteristics

Mollic epipedon thickness: 7 to 17 inches, may include the upper part of the Bt horizon
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—28 to 35 percent; rock fragment content—35 to 75 percent
Reaction: Neutral or slightly alkaline

A1 horizon
Hue—10YR or 7.5YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—very cobbly sandy loam
Clay content—15 to 18 percent
Rock fragment content—35 to 60 percent total, with 15 to 35 percent gravel, 20 to 30 percent cobbles, and 0 to 10 percent stones
Organic matter content—1 to 2 percent

A2 horizon
Hue—10YR or 7.5YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3 dry or moist
Texture—extremely cobbly loam or very cobbly loam
Clay content—18 to 25 percent
Rock fragment content—35 to 75 percent total, with 15 to 40 percent gravel, 20 to 40 percent cobbles, and 0 to 10 percent stones
Organic matter content—1 to 2 percent

Bt horizon
Hue—10YR or 7.5YR
Value—3 to 6 dry, 2 to 4 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly clay loam or extremely cobbly clay loam
Clay content—28 to 35 percent

Rock fragment content—35 to 75 percent total, with 15 to 40 percent gravel, 20 to 40 percent cobbles, and 0 to 10 percent stones

Wagontire Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Basins
Landform: Dissected old alluvial terraces
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 2 to 20 percent
Elevation: 4,360 to 5,150 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Clayey, smectitic, frigid, shallow Argiduridic Durixerolls

Typical Pedon

Wagontire gravelly clay loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; about 300 feet south and 300 feet east of the northwest corner of section 33, T. 25 S., R. 24 E.; U.S. Geological Survey Wagontire Mountain East 7.5-minute topographic quadrangle; latitude 43 degrees, 22 minutes, 6 seconds north and longitude 119 degrees, 51 minutes, 17 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 2 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many roots; common very fine tubular pores; 25 percent gravel; neutral (pH 7.2); abrupt smooth boundary.

AB—2 to 5 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; many roots; common very fine tubular pores; 25 percent gravel; neutral (pH 7.2); abrupt smooth boundary.

Bt1—5 to 11 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common roots; common very fine tubular pores; common moderately thick clay films; 25 percent gravel; neutral (pH 7.0); abrupt smooth boundary.

Bt2—11 to 15 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common roots; common very fine tubular pores; common moderately thick clay films; 25 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); abrupt wavy boundary.

Bqm—15 to 40 inches; light yellowish brown (10YR 6/4) indurated duripan, dark yellowish brown (10YR 4/4) moist; massive; coatings of opal on rock fragments; abrupt wavy boundary.

Bq—40 to 60 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, firm, nonsticky and nonplastic; weak discontinuous cementation; 45 percent gravel; slightly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Mollic epipedon thickness: 7 to 15 inches
Depth to the duripan: 14 to 20 inches

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—35 to 50 percent; rock fragment content—15 to 35 percent

A horizon
Chroma—2 or 3 dry or moist
Texture—gravelly clay loam
Clay content—28 to 35 percent
Rock fragment content—15 to 35 percent gravel
Organic matter content—1 to 2 percent
Reaction—neutral

Bt horizon
Hue—10YR or 7.5YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—gravelly clay or gravelly clay loam
Clay content—35 to 50 percent
Rock fragment content—15 to 35 percent total, with 15 to 35 percent gravel and 0 to 5 percent cobbles
Reaction—neutral

C horizon
Texture—very gravelly sandy loam
Clay content—12 to 18 percent
Rock fragment content—35 to 60 gravel
Reaction—slightly alkaline
Calcium carbonate equivalent—0 to 1 percent

Wanoga Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus, hills, and mountains
Landform: Lava plateaus, hillslopes, and mountain slopes
Parent material: Volcanic ash, colluvium, and residuum derived from volcanic rock such as basalt, rhyolite, or tuff
Slope range: 0 to 65 percent
Elevation: 4,390 to 5,890 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Humic Vitrixerands

Typical Pedon

Wanoga ashy loamy sand in an area of forestland; in map unit 395, Laidlaw-Wanoga complex, dry, 0 to 3 percent slopes, Lake County, Oregon; about 600 feet west and 450 feet north of the southeast corner of section 18, T. 24 S., R. 14 E.; U.S. Geological Survey Cabin Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 29 minutes, 17 seconds north and longitude 121 degrees, 4 minutes, 32 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

Oi—0 to 1 inch; slightly decomposed plant material consisting of ponderosa pine needles.

A1—1 to 8 inches; grayish brown (10YR 5/2) ashy loamy sand, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine interstitial pores; 5 percent gravel; slightly acid (pH 6.4); clear smooth boundary.

A2—8 to 23 inches; grayish brown (10YR 5/2) ashy sand, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common fine, medium, and coarse roots; many very fine interstitial pores; 5 percent gravel; neutral (pH 6.8); clear smooth boundary.

Bw—23 to 29 inches; brown (10YR 5/3) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common fine and medium roots; common fine and medium tubular pores; neutral (pH 6.8); abrupt wavy boundary.

2R—29 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 10 to 15 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—5 to 15 percent; rock fragment content—0 to 30 percent
Other feature: Some pedons do not have an organic layer at the soil surface.

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand, ashy loamy coarse sand, gravelly ashy loamy sand, or ashy sandy loam
Clay content—5 to 15 percent
Rock fragment content—0 to 30 percent total, with 0 to 30 percent gravel and 0 to 5 percent cobbles
Organic matter content—1 to 3 percent
Reaction—slightly acid or neutral

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand, ashy loamy coarse sand, ashy sand, or ashy sandy loam
Clay content—5 to 15 percent
Rock fragment content—0 to 10 gravel
Organic matter content—1 to 3 percent
Reaction—slightly acid or neutral

Bw horizon
Value—5 or 6 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam or cobbly ashy sandy loam
Clay content—10 to 15 percent
Rock fragment content—0 to 30 percent total, with 0 to 15 percent gravel and 0 to 20 percent cobbles
Reaction—slightly acid or neutral

Wegert Series

Depth class: Moderately deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Lava plateaus

Landform: Lava plateaus and lava plains
Parent material: Volcanic ash and pumice over residuum derived from volcanic rock such as basalt
Slope range: 0 to 15 percent
Elevation: 4,320 to 5,310 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitritorrandic Haploxerolls

Typical Pedon

Wegert gravelly ashy loamy sand in an area of rangeland, in map unit 264, Crackedground-Wegert complex, 1 to 15 percent slopes, Lake County, Oregon; about 100 feet south and 200 feet west of the northeast corner of section 6, T. 25 S., R 15 E.; U.S. Geological Survey Cougar Mountain 7.5-minute topographic quadrangle; latitude 43 degrees, 26 minutes, 28 seconds north and longitude 120 degrees, 57 minutes, 21 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; dark grayish brown (10YR 4/2) gravelly ashy loamy sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; 50 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized (0.25 to 2.00 millimeters) pumiceous ash grains; 30 percent fine gravel; neutral (pH 7.0); clear smooth boundary.

A2—2 to 6 inches; dark grayish brown (10YR 4/2) ashy loamy sand, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium and coarse roots; common fine interstitial pores; 50 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized (0.25 to 2.00 millimeters) pumiceous ash grains; 10 percent fine gravel; neutral (pH 7.2); clear smooth boundary.

Bw1—6 to 20 inches; brown (10YR 5/3) ashy loamy sand, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots, few medium and common fine interstitial pores; 40 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized (0.25 to 2.00 millimeters) pumiceous ash grains; 5 percent fine gravel; slightly alkaline (pH 7.4); clear smooth boundary.

Bw2—20 to 27 inches; pale brown (10YR 6/3) ashy sandy loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 30 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized (0.25 to 2.00 millimeters) pumiceous ash grains; slightly alkaline (pH 7.6); clear smooth boundary.

2C—27 to 31 inches; pale brown (10YR 6/3) extremely cobbly ashy loamy sand, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; few very fine and fine roots; few fine tubular pores; 30 percent very pale brown (10YR 7/3), medium to very coarse, sand-sized (0.25 to 2.00 millimeters) pumiceous ash grains; 20 percent gravel and 50 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

2R—31 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 10 to 20 inches
Depth to bedrock: 20 to 40 inches

Particle-size control section: Clay content—5 to 15 percent by weighted average; rock fragment content—0 to 15 percent by weighted average; volcanic ash content—30 to 70 percent in coarse silt to very coarse sand fractions

A1 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand, gravelly ashy loamy sand, very cobbly ashy loamy fine sand, or ashy loamy fine sand
Clay content—5 to 10 percent
Rock fragment content—0 to 60 percent total, with 0 to 35 percent gravel, 0 to 25 percent cobbles, and 0 to 5 percent stones
Organic matter content—2 or 3 percent
Reaction—neutral

A2 horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand or ashy sandy loam
Clay content—5 to 10 percent
Rock fragment content—0 to 15 gravel
Organic matter content—1 or 2 percent
Reaction—neutral or slightly alkaline

Bw1 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Clay content—5 to 15 percent
Rock fragment content—0 to 15 percent gravel
Reaction—slightly alkaline

Bw2 horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam or ashy loamy sand
Rock fragment content—0 to 15 percent total, with 0 to 10 percent gravel and 0 to 10 percent cobbles
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

2C horizon
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—extremely cobbly ashy loamy sand or very cobbly ashy loamy sand
Rock fragment content—40 to 80 percent total, with 0 to 25 percent gravel and 40 to 70 percent cobbles
Reaction—slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Weglike Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Lava plains and lava plateaus
Parent material: Volcanic ash over residuum derived from volcanic rock such as tuff breccia or basalt

Slope range: 0 to 6 percent
Elevation: 4,300 to 4,690 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine-loamy, mixed, superactive, frigid Vitritorrandic Haploxerolls

Typical Pedon

Weglike ashy loamy sand in an area of rangeland, in map unit 671, Weglike-Suckerflat complex, 0 to 3 percent slopes, Lake County, Oregon; about 1.5 miles northwest of Bunchgrass Butte; 75 feet south and 1,800 feet west of the northeast corner of section 20, T. 25 S., R. 18 E.; U.S. Geological Survey Peters Creek Sink 7.5-minute topographic quadrangle; latitude 43 degrees, 23 minutes, 57 seconds north and longitude 120 degrees, 34 minutes, 54 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; grayish brown (10YR 5/2) ashy loamy sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, very friable, nonsticky and nonplastic; many very fine and fine roots; few fine tubular pores; 30 percent very pale brown (10YR 7/3), coarse and very coarse, sand-sized pumiceous ash grains; neutral (pH 7.0); clear wavy boundary.
AB—3 to 12 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine and common medium roots; common fine tubular pores; 25 percent very pale brown (10YR 7/3), coarse and very coarse, sand-sized pumiceous ash grains; neutral (pH 7.3); abrupt smooth boundary.
2Bwb1—12 to 22 inches; yellowish brown (10YR 5/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common medium and coarse roots; common fine and medium tubular pores; 5 percent very pale brown (10YR 7/3) pumiceous ash grains 0.5 to 2.0 millimeters in diameter; 25 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); clear wavy boundary.
2Bwb2—22 to 23 inches; yellowish brown (10YR 5/4) extremely gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common medium and coarse roots; common medium tubular pores; 50 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.6); abrupt irregular boundary.
2R—23 inches; fractured tuff breccia.

Range in Characteristics

Mollic epipedon thickness: 7 to 14 inches
Depth to bedrock: 20 to 40 inches
Depth to the buried horizons: 12 to 16 inches
Particle-size control section: Clay content—18 to 27 percent; rock fragment content—15 to 35 percent
Lithology of fragments: Mainly basaltic tuff breccia or basalt
A horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy loamy sand or gravelly ashy coarse sandy loam
Clay content—4 to 12 percent
Rock fragment content—0 to 30 percent gravel
Organic matter content—2 to 3 percent

Volcanic glass content—35 to 80 percent throughout all fractions, with 15 to 30 percent pumiceous ash grains visible in coarser sand fractions
Reaction—neutral

AB horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy sandy loam or ashy loamy sand
Clay content—5 to 10 percent
Rock fragment content—0 to 10 percent gravel
Organic matter content—1 to 3 percent
Volcanic glass content—35 to 80 percent throughout all fractions, with 15 to 30 percent pumiceous ash grains visible in coarser sand fractions
Reaction—neutral

2Bwb1 horizon
Value—4 or 5 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—gravelly loam, gravelly sandy loam, or gravelly clay loam
Clay content—18 to 30 percent
Rock fragment content—15 to 35 percent total, with 15 to 30 percent gravel and 0 to 10 percent cobbles
Volcanic glass content—0 to 15 percent throughout all fractions, with 0 to 5 percent pumiceous ash grains visible in coarser sand fractions
Reaction—slightly alkaline

2Bwb2 horizon
Texture—extremely gravelly loam or very gravelly clay loam
Clay content—18 to 30 percent
Rock fragment content—35 to 70 percent total, with 35 to 50 percent gravel and 0 to 20 percent cobbles
Reaction—slightly alkaline

Westbutte Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Hills, lava plateaus, and mountains
Landform: Hillslopes, lava plateaus, and mountain slopes
Parent material: Colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 2 to 65 percent
Elevation: 4,460 to 6,680 feet
Mean annual precipitation: 11 to 18 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Pachic Haploxerolls

Typical Pedon

Westbutte very stony loam in an area of rangeland, in map unit 250, Cleavage-Ninemile-Westbutte complex, 2 to 15 percent slopes; Lake County, Oregon; about 1,500 feet north and 600 feet east of the southwest corner of section 15, T. 35 S., R. 22 E.; U.S. Geological Survey Cooper Draw 7.5-minute topographic quadrangle;

latitude 42 degrees, 31 minutes, 48 seconds north and longitude 120 degrees, 7 minutes, 11 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; grayish brown (10YR 5/2) very stony loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; common fine roots; common very fine and fine tubular pores; 15 percent gravel, 20 percent cobbles, and 15 percent stones; neutral (pH 7.0); clear smooth boundary.

A2—3 to 11 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, firm, slightly sticky and slightly plastic; common fine roots; common very fine and fine tubular pores; 15 percent gravel, 25 percent cobbles, and 15 percent stones; neutral (pH 7.2); clear smooth boundary.

Bw—11 to 21 inches; grayish brown (10YR 5/2) extremely cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to weak fine subangular; slightly hard, firm, moderately sticky and moderately plastic; common fine roots; common very fine tubular pores; 20 percent gravel, 25 percent cobbles, and 15 percent stones; neutral (pH 7.3); abrupt smooth boundary.

R—21 inches; welded tuff.

Range in Characteristics

Mollic epipedon thickness: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—18 to 30 percent; rock fragment content—35 to 70 percent

A1 horizon
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 or 2 dry or moist
Texture—very stony loam or extremely stony loam
Clay content—15 to 22 percent
Rock fragment content—35 to 80 percent total, with 15 to 45 percent gravel, 5 to 30 percent cobbles, and 20 to 40 percent stones
Organic matter content—1 to 3 percent
Reaction—neutral

A2 horizon
Hue—10YR or 7.5Y
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—extremely cobbly loam, extremely cobbly clay loam, very cobbly clay loam, very cobbly loam, or very stony loam
Clay content—18 to 30 percent
Rock fragment content—35 to 80 percent total, with 10 to 35 percent gravel, 20 to 40 percent cobbles, and 0 to 35 percent stones
Organic matter content—1 to 3 percent
Reaction—neutral

Bw horizon
Hue—10YR or 7.5YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 to 4 dry, 2 or 3 moist
Texture—extremely cobbly loam, extremely cobbly clay loam, very cobbly clay loam, very cobbly loam, or very stony loam

Clay content—18 to 30 percent
Rock fragment content—25 to 70 percent total, with 10 to 35 percent gravel, 20 to 40 percent cobbles, and 0 to 35 percent stones
Reaction—neutral or slightly alkaline

Widowspring Series

Depth class: Very deep to bedrock
Drainage class: Moderately well drained
Landscape: Basins
Landform: Stream terraces
Parent material: Alluvium derived from mixed volcanic rock
Slope range: 0 to 2 percent
Elevation: 4,650 to 5,060 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Fine-silty, mixed, superactive, frigid Cumulic Haploxerolls

Typical Pedon

Widowspring silt loam in an area of irrigated pasture; in the soil survey of Harney County Area, Oregon, about 3 miles northwest of Burns; about 1,100 feet north and 400 feet east of the southwest corner of section 26, T. 22 S., R. 30 E.; U.S. Geological Survey Poison Creek 7.5-minute topographic quadrangle; latitude 43 degrees, 37 minutes, 54 seconds north and longitude 119 degrees, 5 minutes, 44 seconds west longitude; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; common very fine tubular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.
A2—7 to 22 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; common very fine tubular pores; slightly alkaline (pH 7.4); clear wavy boundary.
AB—22 to 28 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; many very fine tubular pores; neutral (pH 7.2); gradual wavy boundary.
Bw—28 to 43 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; many very fine tubular pores; many faint reddish brown (5YR 4/4) iron accumulations; neutral (pH 7.0); clear wavy boundary.
2C—43 to 63 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 3/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; common very fine and fine tubular pores; many distinct reddish brown (5YR 4/4) iron accumulations; neutral (pH 7.0).

Range in Characteristics

Mollic epipedon thickness: 20 to 45 inches
Depth to bedrock: More than 60 inches

Depth to water table: 36 to 60 inches below the surface at some time during November through July (apparent); as much as 6 inches above the surface at some time during March through May (rare ponding)
Particle-size control section: Clay content—20 to 35 percent
Reaction: Neutral or slightly alkaline
Depth to redoximorphic accumulations: 25 to 45 inches

A horizon
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Clay content—15 to 25 percent
Organic matter content—1 to 3 percent
Reaction—neutral or slightly alkaline

AB and Bw horizons
Chroma—3 moist
Texture—silt loam or silty clay loam
Clay content—20 to 35 percent
Reaction—neutral or slightly alkaline

2C horizon
Texture—silt loam or loam
Clay content—20 to 25 percent
Reaction—neutral or slightly alkaline

Wildcatbutte Series

Depth class: Very deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus, hills, and mountains
Landform: Dissected lava plateaus, hillslopes, and mountain slopes
Parent material: Volcanic ash and colluvium and residuum derived from volcanic rock such as welded tuff or basalt
Slope range: 15 to 65 percent
Elevation: 4,310 to 5,760 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Vitritorrandic Haploxerolls

Typical Pedon

Wildcatbutte extremely cobbly ashy loam in an area of rangeland; in the soil survey of Harney County Area, Oregon; about 1.2 miles north of the Lost Forest Research Natural Area; about 1,120 feet north and 960 feet west of the southeast corner of section 10, T. 22 S., R. 20 E.; U.S. Geological Survey Moonlight Butte 7.5-minute topographic quadrangle; latitude 43 degrees, 25 minutes, 0.5 second north and longitude 120 degrees, 17 minutes, 55.7 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated. When described on September 17, 2002, the soil was dry throughout.)

A1—0 to 4 inches; brown (10YR 5/3) extremely cobbly ashy loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; many very fine interstitial pores; 25 percent gravel, 35 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.5); gradual smooth boundary.

A2—4 to 10 inches; brown (10YR 5/3) very cobbly ashy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine and common medium roots; many very fine interstitial pores; 20 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

Bw1—10 to 14 inches; brown (10YR 5/3) very cobbly ashy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; common very fine tubular pores; 20 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.8); clear smooth boundary.

Bw2—14 to 24 inches; brown (10YR 5/3) very cobbly ashy loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine tubular pores; 20 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.8); gradual smooth boundary.

Bkq—24 to 60 inches; brown (10YR 5/3) extremely cobbly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; 40 percent gravel, 20 percent cobbles, and 10 percent stones; secondary carbonates and opaline silica segregated as common medium and coarse coatings on bottom of rock fragments; strongly effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Mollic epipedon thickness: 10 to 17 inches, may include the Bw1 horizon
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—10 to 18 percent by weighted average; rock fragment content—50 to 75 percent by weighted average
Depth to identifiable secondary carbonates: 24 to 40 inches
Volcanic glass content: 30 to 75 percent in coarse silt to fine sand fractions

A horizon
Value—4 or 5 dry
Chroma—2 or 3 dry or moist
Texture—gravelly ashy fine sandy loam, extremely cobbly ashy loam, cobbly ashy fine sandy loam, or stony ashy sandy loam
Clay content—5 to 18 percent
Rock fragment content—15 to 80 percent total, with 5 to 30 percent gravel, 0 to 50 percent cobbles, and 0 to 15 percent stones
Reaction—neutral or slightly alkaline
Organic matter content—1 to 3 percent

Bw horizon
Hue—10YR or 7.5YR
Value—3 to 5 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly ashy loam or extremely cobbly ashy loam
Clay content—10 to 18 percent
Rock fragment content—35 to 80 percent total, with 20 to 40 percent gravel, 15 to 40 percent cobbles, and 0 to 15 percent stones
Reaction—neutral or slightly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bkq horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly ashy sandy loam, extremely gravelly ashy loamy sand, extremely cobbly ashy sandy loam, extremely cobbly ashy loam, or very cobbly ashy loam
Clay content—5 to 18 percent
Rock fragment content—35 to 80 percent total, with 20 to 40 percent gravel, 10 to 40 percent cobbles, and 5 to 15 percent stones
Reaction—neutral to moderately alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2
Other feature—few or common coatings of identifiable secondary carbonates on bottom of rock fragments

Wildhill Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Bedrock-controlled lake terrace escarpments of Pleistocene lake basins
Parent material: Mixed eolian deposits, alluvium, and colluvium derived from volcanic rock such as basalt
Slope range: 20 to 60 percent
Elevation: 4,260 to 6,150 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Durinodic Xeric Haplargids

Typical Pedon

Wildhill extremely cobbly sandy loam in an area of rangeland, in map unit 441, McNye-Wildhill-Rock outcrop complex, 20 to 50 percent slopes; Lake County, Oregon; about 2,600 feet south and 700 feet east of the northwest corner of section 36, T. 30 S., R. 18 E.; U.S. Geological Survey Diablo Peak 7.5-minute topographic quadrangle; latitude 42 degrees, 55 minutes, 32 seconds north and longitude 120 degrees, 32 minutes, 26 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; pale brown (10YR 6/3) extremely cobbly sandy loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and few medium roots; common fine irregular pores; 30 percent gravel, 20 percent cobbles, and 15 percent stones; strongly alkaline (pH 9.0); clear smooth boundary.
A2—2 to 9 inches; pale brown (10YR 6/3) very cobbly fine sandy loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; common fine and few medium roots; common fine irregular pores; 25 percent gravel and 15 percent cobbles; strongly alkaline (pH 9.0); abrupt smooth boundary.
Btn—9 to 14 inches; pale brown (10YR 6/3) very cobbly sandy clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to weak

fine angular blocky; slightly hard, firm, moderately sticky and moderately plastic; common fine and few medium roots; common fine irregular pores; common faint and few distinct clay films on faces of peds; 25 percent gravel and 15 percent cobbles; very strongly alkaline (pH 9.2); clear smooth boundary.

Btkqn1—14 to 19 inches; light brown (10YR 6/4) very cobbly clay loam, brown (10YR 4/3) moist; moderate medium angular blocky structure parting to strong fine angular blocky; hard, firm and brittle, moderately sticky and moderately plastic; few fine roots; few fine irregular pores; common distinct clay films on faces of peds; 25 percent gravel, 15 percent cobbles, and 5 percent stones; violently effervescent; very strongly alkaline (pH 9.6); gradual wavy boundary.

Btkqn2—19 to 25 inches; light brown (10YR 6/4) very cobbly sandy clay loam, brown (10YR 4/4) moist; moderate medium angular blocky structure; firm and brittle; common distinct and few faint clay films on faces of peds; strongly effervescent; very strongly alkaline (pH 9.6); abrupt wavy boundary.

2R—25 inches; basalt.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—20 to 35 percent; rock fragment content—40 to 65 percent by weighted average
Other feature: 15 to 30 inches to firm and brittle horizon

A1 horizon
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Texture—extremely cobbly sandy loam or very cobbly loam
Clay content—10 to 22 percent
Rock fragment content—35 to 70 percent total, with 20 to 30 percent gravel, 15 to 30 percent cobbles, and 0 to 20 percent stones
Organic matter content—0.3 to 0.5 percent
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 5

A2 horizon
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Texture—very cobbly fine sandy loam
Clay content—12 to 18 percent
Rock fragment content—35 to 50 percent total, with 15 to 25 percent gravel, 15 to 30 percent cobbles, and 0 to 5 percent stones
Organic matter content—0.3 to 0.5 percent
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 5

Btn or Btkn horizon
Value—6 or 7 dry
Chroma—3 or 4 dry or moist
Texture—very cobbly sandy clay loam, extremely stony loam, very cobbly clay loam, or extremely cobbly clay loam
Clay content—20 to 35 percent
Rock fragment content—35 to 70 percent total, with 5 to 30 percent gravel, 15 to 35 percent cobbles, and 0 to 30 percent stones
Reaction—very strongly alkaline

Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—10 to 30

Btkqn horizon
Value—6 or 7 dry
Chroma—3 or 4 dry or moist
Texture—very cobbly sandy clay loam, very cobbly clay loam, extremely cobbly loam, extremely gravelly loam, or extremely stony loam
Clay content—20 to 30 percent
Rock fragment content—35 to 70 percent total, with 15 to 55 percent gravel, 10 to 30 percent cobbles, and 5 to 20 percent stones
Reaction—very strongly alkaline
Calcium carbonate equivalent—1 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—5 to 30

Winterim Series

Depth class: Deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Slump blocks on lava plateaus
Parent material: Colluvium and residuum derived from volcanic rock such as basalt or tuff
Slope range: 2 to 30 percent
Elevation: 4,860 to 6,610 feet
Mean annual precipitation: 20 to 25 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 30 to 50 days

Taxonomic classification: Clayey-skeletal, smectitic, frigid Pachic Argixerolls

Typical Pedon

Winterim very gravelly loam in an area of forestland; in the soil survey of Lake County, Oregon, Southern Part; in the Fremont National Forest, about 9 miles east-southwest of Lakeview, Oregon; in the southeast corner of the northwest corner of section 30, T. 39 S., R. 22 E.; U.S. Geological Survey Horse Prairie 7.5-minute topographic quadrangle; latitude 42 degrees, 9 minutes, 39 seconds north and longitude 120 degrees, 10 minutes, 12 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

Oi—0 to 1 inch; slightly decomposed plant material consisting of ponderosa pine needles.
A—1 to 6 inches; very dark grayish brown (10YR 3/2) very gravelly loam, black (10YR 2/1) moist; moderate fine granular structure; slightly hard, very friable, moderately sticky and moderately plastic; many roots; many irregular pores; 25 percent gravel, 5 percent cobbles, and 5 percent stones; slightly acid (pH 6.5); clear smooth boundary.
Bt1—6 to 13 inches; brown (7.5YR 4/2) gravelly clay loam, dark brown (7.5YR 3/2) moist; weak medium subangular blocky structure parting to moderate fine granular; hard, friable, very sticky and moderately plastic; many roots; common very fine and fine tubular pores; few faint clay films on faces of peds; 15 percent gravel and 5 percent cobbles; slightly acid (pH 6.5); clear wavy boundary.

Bt2—13 to 22 inches; reddish brown (5YR 4/3) very gravelly clay, dark reddish brown (5YR 3/3) moist; moderate fine and medium subangular structure; hard, firm, very sticky and very plastic; common roots; common very fine and fine tubular pores; common faint clay films on faces of peds and in tubular pores; 40 percent gravel, 10 percent cobbles, and 10 percent stones; slightly acid (pH 6.3); clear wavy boundary.

Bt3—22 to 46 inches; reddish brown (5YR 4/4) very gravelly clay, dark reddish brown (5YR 3/4) moist; moderate medium angular blocky structure; very hard, very firm, very sticky and very plastic; few roots; common very fine and fine tubular pores; many distinct clay films on faces of peds and in tubular pores; 35 percent gravel; slightly acid (pH 6.3); gradual wavy boundary.

Cr—46 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 20 to 30 inches

Depth to bedrock: 40 to 60 inches

Particle-size control section: Clay content—35 to 50 percent; rock fragment content—35 to 60 percent

Reaction: Slightly acid or neutral

A horizon

Hue—10YR or 7.5YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Texture—very gravelly loam

Clay content—20 to 27 percent

Rock fragment content—35 to 60 percent total, with 20 to 50 percent gravel, 0 to 10 percent cobbles, and 0 to 10 percent stones

Bt1 horizon

Hue—7.5YR or 5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—gravelly clay loam or gravelly loam

Clay content—25 to 30 percent

Rock fragment content—15 to 35 percent total, with 15 to 35 percent gravel, 0 to 5 percent cobbles, and 0 to 5 percent stones

Bt2 horizon

Hue—7.5YR or 5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—gravelly clay loam or very gravelly clay

Clay content—35 to 50 percent

Rock fragment content—35 to 60 percent total, with 35 to 50 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones

Bt3 horizon

Hue—7.5YR or 5YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly clay

Clay content—40 to 50 percent

Rock fragment content—35 to 60 percent total, with 35 to 50 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones

Wiskan Series

Depth class: Moderately deep to bedrock
Drainage class: Well drained
Landscape: Lava plateaus
Landform: Escarpments on lava plateaus
Parent material: Mixed eolian deposits, colluvium, and residuum derived from volcanic rock such as basalt or welded tuff
Slope range: 15 to 45 percent
Elevation: 4,440 to 5,320 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Xeric Haplargids

Typical Pedon

Wiskan very cobbly loamy fine sand in an area of rangeland, in map unit 681, Wiskan-Rock outcrop complex, 15 to 45 percent slopes; Lake County, Oregon; about 1,500 feet south and 1,100 feet east of the northwest corner of section 11, T. 32 S., R. 19 E.; U.S. Geological Survey Sharp Top 7.5-minute topographic quadrangle; latitude 42 degrees, 48 minutes, 54 seconds north and longitude 120 degrees, 26 minutes, 56 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; brown (10YR 5/3) very cobbly loamy fine sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, slightly sticky and nonplastic; many very fine and few fine roots; common fine and medium interstitial and tubular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

A2—3 to 10 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; few very fine, fine, medium, and coarse roots; common very fine and fine tubular and interstitial pores; 15 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

Bt1—10 to 14 inches; pale brown (10YR 6/3) cobbly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to weak fine subangular blocky; soft, very friable, moderately sticky and moderately plastic; few very fine and fine roots; common fine and medium interstitial and tubular pores; 15 percent gravel, 10 percent cobbles, and 5 percent stones; common faint and few distinct continuous clay films on faces of peds; slightly alkaline (pH 7.8); clear smooth boundary.

Bt2—14 to 21 inches; light brown (7.5YR 6/3) very cobbly clay loam, brown (7.5YR 4/3) moist; moderate medium subangular blocky structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few fine interstitial and tubular pores; common distinct continuous clay films on faces of peds; 20 percent gravel, 15 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bt3—21 to 23 inches; pink (7.5YR 7/3) very gravelly loam, brown (7.5YR 5/3) moist; massive; extremely hard, extremely firm, nonsticky and nonplastic; brittle; 20 percent gravel, 10 percent cobbles, and 5 percent stones; common distinct

continuous clay films on faces of peds; moderately alkaline (pH 8.2); abrupt smooth boundary.
R—23 inches; basalt.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Particle-size control section: Clay content—27 to 35 percent by weighted average; rock fragment content—35 to 50 percent by weighted average
Reaction: Slightly alkaline or moderately alkaline

A1 horizon
Hue—10YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly loamy fine sand
Clay content—5 to 15 percent
Rock fragment content—35 to 55 percent total, with 10 to 30 percent gravel, 10 to 25 percent cobbles, and 0 to 10 percent stones
Organic matter content—0.4 to 0.8 percent

A2 horizon
Hue—10YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—gravelly sandy loam
Clay content—10 to 15 percent
Rock fragment content—15 to 35 percent total, with 10 to 30 percent gravel, 0 to 10 percent cobbles, and 0 to 5 percent stones
Organic matter content—0.4 to 0.8 percent

Bt1 and Bt2 horizons
Hue—10YR or 7.5YR
Value—6 or 7 dry, 4 or 5 moist
Chroma—3 dry or moist
Texture—cobbly clay loam or very cobbly clay loam
Clay content—30 to 40 percent
Rock fragment content—30 to 50 percent total, with 10 to 35 percent gravel, 10 to 20 percent cobbles, and 0 to 5 percent stones

Bt3 horizon
Hue—7.5YR
Value—7 dry, 5 moist
Chroma—3 dry or moist
Texture—very gravelly loam or very cobbly loam
Clay content—20 to 26 percent
Rock fragment content—35 to 55 percent total, with 20 to 35 percent gravel, 10 to 20 percent cobbles, and 0 to 5 percent stones

Characteristics Outside Range of Series

The Wiskan soils in this survey area do not have secondary carbonates in the subsoil, and the frost-free period is 50 to 80 days.

Xeric Haplocambids

Depth class: Very shallow to very deep to bedrock
Drainage class: Well drained
Landscape: Basins
Landform: Escarpments
Parent material: Colluvium derived from volcanic rock such as welded tuff or basalt
Slope range: 20 to 90 percent
Elevation: 4,260 to 6,210 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Xeric Haplocambids

Typical Pedon

Xeric Haplocambids in an area of rangeland, in map unit 564, Rock outcrop-Xeric Haplocambids-Rubble land complex, 50 to 90 percent slopes; Lake County, Oregon; about 1,700 feet south and 2,200 feet east of the northwest corner of section 10, T. 33 S., R. 22 E.; U.S. Geological Survey Commodore Ridge 7.5-minute topographic quadrangle; latitude 42 degrees, 43 minutes, 30 seconds north and longitude 120 degrees, 6 minutes, 43 seconds west, NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; light brownish gray (10YR 6/2) extremely stony sandy loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure parting to moderate very fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine and fine tubular pores; 20 percent gravel, 30 percent cobbles, 20 percent stones, and 5 percent boulders; slightly alkaline (pH 7.5); clear smooth boundary.
Bw—3 to 13 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak very fine subangular blocky structure parting to moderate very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; common very fine and fine tubular pores; 20 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.
C—13 to 18 inches; brown (7.5YR 5/4) extremely cobbly sandy loam, brown (7.5YR 4/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular pores; 30 percent gravel, 40 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.6); abrupt wavy boundary.
2R—18 inches; welded tuff.

Range in Characteristics

Depth to bedrock: 10 to 80 inches
Particle-size control section: Clay content—10 to 35 percent; rock fragment content—30 to 80 percent
Reaction: Neutral to moderately alkaline
Calcium carbonate equivalent: 0 to 1 percent
Salinity (electrical conductivity): 0 to 2 millimhos per centimeter

A horizon
Hue—10YR or 7.5YR
Value—6 or 7 dry, 3 to 5 moist
Chroma—2 or 3 dry or moist
Texture—extremely stony sandy loam
Clay content—10 to 18 percent
Rock fragment content—60 to 80 percent total, with 10 to 30 percent gravel, 20 to 40 percent cobbles, 10 to 20 percent stones, and 0 to 5 percent boulders
Organic matter content—0.4 to 1.0 percent

Bw and C horizons
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—very cobbly loam, extremely cobbly sandy loam, very cobbly sandy loam, very cobbly clay loam, very cobbly sandy clay loam, or cobbly loam
Clay content—10 to 35 percent
Rock fragment content—30 to 80 percent total, with 10 to 30 percent gravel, 20 to 40 percent cobbles, and 0 to 10 percent stones

Xerolls

Depth class: Shallow to very deep to bedrock
Drainage class: Well drained
Landscape: Hills
Landform: Hillslopes
Parent material: Volcanic ash, colluvium, and eolian deposits derived from volcanic rock such as basalt or welded tuff
Slope range: 20 to 65 percent
Elevation: 4,320 to 5,100 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Xerolls

Typical Pedon

Xerolls; in map unit 565, Rock outcrop-Xerolls complex, 20 to 60 percent south slopes; Lake County, Oregon; about 1,900 feet south and 800 feet west of the northeast corner of section 29, T. 24 S., R. 17 E.; U.S. Geological Survey Jacks Place 7.5-minute topographic quadrangle; latitude 43 degrees, 27 minutes, 54 seconds north and longitude 120 degrees, 41 minutes, 53 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A1—0 to 2 inches; gray (10YR 5/1) extremely stony ashy fine sandy loam, very dark gray (10YR 3/1) moist; strong medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common fine interstitial and tubular pores; 30 percent gravel, 30 percent cobbles, and 25 percent stones; neutral (pH 7.3); clear smooth boundary.
A2—2 to 7 inches; grayish brown (10YR 5/2) extremely stony ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to strong medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine interstitial and tubular pores; 30 percent gravel, 30 percent cobbles, and 20 percent stones; neutral (pH 7.3); clear smooth boundary.

Bw—7 to 11 inches; brown (10YR 5/3) extremely stony fine sandy loam, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; few very fine, fine, and medium roots; common fine interstitial and tubular pores; 30 percent gravel, 30 percent cobbles, and 20 percent stones; neutral (pH 7.3); abrupt smooth boundary.

2R—11 inches; basalt.

Range in Characteristics

Mollic epipedon thickness: 7 to 20 inches
Depth to bedrock: 10 to 80 inches
Particle-size control section: Clay content—10 to 35 percent; rock fragment content—15 to 80 percent
Volcanic ash content: 0 to 60 percent

A horizon
Hue—10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—extremely stony ashy fine sandy loam
Clay content—10 to 18 percent
Rock fragment content—60 to 90 percent total, with 15 to 30 percent gravel, 15 to 30 percent cobbles, and 20 to 45 percent stones
Organic matter content—1 or 2 percent
Reaction—neutral to moderately alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter

Bw horizon
Hue—10YR
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 to 4 dry or moist
Texture—extremely stony fine sandy loam, very cobbly loam, very gravelly clay loam, gravelly sandy loam, or very stony ashy fine sandy loam
Clay content—10 to 35 percent
Rock fragment content—15 to 80 percent total, with 10 to 30 percent gravel, 5 to 40 percent cobbles, and 0 to 40 percent stones
Reaction—neutral to moderately alkaline
Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Yankeewell Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Landscape: Lava plateaus and hills
Landform: Lava plateaus and hillslopes
Parent material: Mixed eolian deposits over residuum derived from volcanic rock such as basalt
Slope range: 2 to 20 percent
Elevation: 4,300 to 6,020 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Loamy, mixed, superactive, frigid, shallow Xeric Natridurids

Typical Pedon

Yankeewell very cobbly sandy loam in an area of rangeland, in map unit 271, Diablopeak-Yankeewell complex, 2 to 20 percent slopes; Lake County, Oregon; about 2,000 feet north and 2,100 feet west of the southeast corner of section 36, T. 31 S., R. 19 E.; U.S. Geological Survey Sharp Top 7.5-minute topographic quadrangle; latitude 42 degrees, 50 minutes, 24 seconds north and longitude 120 degrees, 25 minutes, 18 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 3 inches; brown (10YR 5/3) very cobbly sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common fine and medium interstitial pores; 20 percent gravel, 20 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.0); abrupt smooth boundary.

E—3 to 6 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, common fine, and few medium roots; many fine and medium vesicular pores; 15 percent gravel and 5 percent cobbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

2Btkn—6 to 11 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to strong medium subangular blocky; hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine and medium tubular pores; common distinct clay films on faces of peds; secondary carbonates finely disseminated throughout; slightly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

2Bkqm1—11 to 18 inches; very pale brown (10YR 8/3) cemented material, very pale brown (10YR 7/4) moist; strong medium platy structure; extremely hard, very firm; few very fine and fine roots in widely spaced fractures; few very fine and fine tubular pores; moderately cemented or strongly cemented with secondary silica; secondary carbonates segregated in filaments and as few fine irregular coatings on top and bottom of peds; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

2Bkqm2—18 to 25 inches; very pale brown (10YR 8/2) cemented material, very pale brown (10YR 7/3) moist; strong medium platy structure; very rigid; indurated with secondary silica; thin laminar caps of opal on top of peds; secondary carbonates segregated as common medium irregular coatings on bottom of peds; violently effervescent; very strongly alkaline (pH 9.2); abrupt smooth boundary.

2R—25 inches; fractured basalt.

Range in Characteristics

Depth to the duripan: 10 to 20 inches
Depth to bedrock: 18 to 26 inches
Depth to top of natric horizon: 5 to 9 inches
Particle-size control section: Clay content—24 to 35 percent by weighted average; rock fragment content—5 to 25 percent by weighted average

A horizon
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—very cobbly sandy loam or very stony loam
Clay content—10 to 24 percent

Rock fragment content—35 to 50 percent total, with 15 to 30 percent gravel, 5 to 25 percent cobbles, and 0 to 20 percent stones
Organic matter content—0.6 to 1.0 percent
Reaction—slightly alkaline to strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 4

E horizon
Value—6 or 7 dry, 4 or 5 moist
Texture—fine sandy loam, loam, gravelly loam, or cobbly sandy loam
Clay content—12 to 24 percent
Rock fragment content—10 to 25 percent total, with 10 to 25 percent gravel, 0 to 20 percent cobbles, and 0 to 5 percent stones
Reaction—moderately alkaline or strongly alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 4

2Btkn horizon
Hue—7.5YR or 10YR
Value—6 or 7 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—clay loam, gravelly clay loam, or cobbly clay loam
Clay content—27 to 35 percent
Rock fragment content—0 to 20 percent total, with 0 to 15 percent gravel, 0 to 15 percent cobbles, and 0 to 5 percent stones
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—1 to 3 percent
Salinity (electrical conductivity)—4 to 8 millimhos per centimeter
Sodicity (sodium adsorption ratio)—13 to 40

2Bkqm horizon
Hue—7.5YR or 10YR
Value—6 to 8 dry, 5 to 7 moist
Chroma—3 or 4 dry or moist
Cementation—moderately cemented to indurated
Calcium carbonate equivalent—1 to 5 percent

Yapoah Series

Depth class: Very deep to bedrock
Drainage class: Somewhat excessively drained
Landscape: Hills
Landform: Hillslopes
Parent material: Volcanic ash and colluvium derived from volcanic rock such as rhyolite or basalt
Slope range: 15 to 40 percent
Elevation: 4,540 to 5,690 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy-skeletal, glassy, frigid Humic Vitrixerands

Typical Pedon

Yapoah gravelly ashy loamy sand, 15 to 40 percent north slopes, in an area of forestland; in map unit 686, Lake County, Oregon; about 1,320 feet north and 1,320 feet east of the southwest corner of section 9, T. 23 S., R. 15 E.; U.S. Geological Survey Sixteen Butte 7.5-minute topographic quadrangle; latitude and longitude data not available. (Colors are for moist soil unless otherwise stated.)

Oi—0 to 1 inch; slightly decomposed plant material consisting of pine needles and litter.

A1—1 to 6 inches; very dark grayish brown (10YR 3/2) gravelly ashy loamy sand, dark grayish brown (10YR 4/2) dry; single grain; loose, nonsticky and nonplastic; many very fine roots; many fine interstitial roots; 40 percent light gray (10YR 7/2) pumice paragravel and 15 percent rhyolite gravel; neutral (pH 6.8); clear smooth boundary.

A2—6 to 16 inches; dark brown (10YR 3/3) gravelly ashy loamy sand, brown (10YR 5/3) dry; single grain; loose, nonsticky and nonplastic; many fine roots; many very fine interstitial pores; 35 percent light gray (10YR 7/2) pumice paragravel, 20 percent rhyolite gravel, and 5 percent rhyolite cobbles; neutral (pH 6.8); clear wavy boundary.

AC—16 to 36 inches; brown (10YR 4/3) very gravelly ashy loamy sand, pale brown (10YR 6/3) dry; single grain; loose, nonsticky and nonplastic; few fine, medium, and coarse roots; many very fine interstitial pores; 15 percent light gray (10YR 7/3) pumice paragravel, 25 percent rhyolite gravel, and 10 percent rhyolite cobbles; neutral (pH 7.0); clear wavy boundary.

C1—36 to 43 inches; dark grayish brown (10YR 4/2) very cobbly ashy loamy sand, yellowish brown (10YR 5/4) dry; single grain; loose, nonsticky and nonplastic; many fine roots; many very fine pores; 15 percent light gray (10YR 7/2) pumice paragravel, 20 percent rhyolite gravel, and 25 percent rhyolite cobbles; neutral (pH 6.8); clear wavy boundary.

C2—43 to 61 inches; brown (10YR 4/3) extremely flaggy ashy loamy sand, pale brown (10YR 6/3) dry; single grain; loose, nonsticky and nonplastic; few fine roots; common fine interstitial pores; 5 percent light gray (10YR 7/2) pumice paragravel, 20 percent rhyolite gravel, 15 percent rhyolite cobbles, and 35 percent rhyolite flagstones; neutral (pH 6.8).

Range in Characteristics

Mollic epipedon thickness: 10 to 15 inches
Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—2 to 8 percent; rock fragment content—35 to 55 percent by weighted average
Reaction: Neutral throughout

A1 horizon
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 3 or 4 dry
Texture—ashy loamy sand or very gravelly ashy loamy sand
Clay content—5 to 10 percent
Rock fragment content—0 to 30 percent gravel
Pararock fragment content—0 to 40 percent pumice paragravel
Organic matter content—1 to 6 percent

A2 horizon
Value—2 or 3 moist, 4 or 5 dry
Chroma—2 or 3 moist, 3 or 4 dry
Texture—gravelly ashy loamy sand, very gravelly ashy loamy sand, or gravelly ashy sandy loam
Clay content—5 to 10 percent
Rock fragment content—15 to 45 percent total, with 15 to 35 percent gravel and 0 to 10 percent cobbles

Pararock fragment content—20 to 40 percent pumice paragravel
Organic matter content—1 to 4 percent

AC horizon
Value—3 or 4 moist, 4 to 6 dry
Chroma—2 to 4 moist or dry
Texture—very gravelly ashy loamy sand, gravelly ashy loamy sand, or very gravelly ashy sandy loam
Clay content—5 to 10 percent
Rock fragment content—15 to 55 percent total, with 15 to 45 percent gravel and 0 to 10 percent cobbles
Pararock fragment content—15 to 30 percent pumice paragravel
Organic matter content—0.5 to 0.8 percent

C horizon
Value—4 or 5 moist, 5 or 6 dry
Chroma—2 to 4 moist or dry
Texture—very gravelly ashy loamy sand, very gravelly ashy sandy loam, very cobbly ashy loamy sand, or extremely flaggy ashy loamy sand
Clay content—5 to 10 percent
Rock fragment content—40 to 85 percent total, with 10 to 30 percent gravel, 10 to 40 percent cobbles, and 0 to 40 percent flagstones
Pararock fragment content—5 to 20 percent pumice paragravel

Youtlkue Series

Depth class: Moderately deep to paralithic material
Drainage class: Somewhat poorly drained
Landscape: Basins
Landform: Depressions of lakebeds
Parent material: Lacustrine deposits derived from volcanic ash and diatomaceous earth
Slope range: 0 to 2 percent
Elevation: 4,280 to 4,340 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days

Taxonomic classification: Ashy, glassy, frigid Vitrixerandic Aquicambids

Typical Pedon

Youtlkue ashy silt loam, 0 to 2 percent slopes, in an area of rangeland, in map unit 688, Lake County, Oregon; about 2,000 feet north and 200 feet east of the southwest corner of section 27, T. 27 S., R. 16 E.; U.S. Geological Survey Thorn Lake 7.5-minute topographic quadrangle; latitude 43 degrees, 11 minutes, 50 seconds north and longitude 120 degrees, 49 minutes, 1.8 seconds west; NAD 27. (Colors are for dry soil unless otherwise stated.)

A—0 to 5 inches; light brownish gray (10YR 6/2) ashy silt loam, dark brown (10YR 3/3) moist; weak thin platy structure parting to weak fine subangular blocky; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common very fine interstitial pores; moderately alkaline (pH 8.0); clear smooth boundary.
Bw1—5 to 13 inches; light gray (10YR 7/1) ashy silt loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly

sticky and nonplastic; few very fine roots; many very fine interstitial pores; 10 percent very pale brown (10YR 8/2) glass aggregate or diatomite sand grains (0.1 to 0.5 millimeter in size); slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bw2—13 to 22 inches; light gray (10YR 7/2) ashy silty clay loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; hard, friable, slightly sticky and nonplastic; many very fine and fine roots; many very fine interstitial pores; 10 percent very pale brown (10YR 8/2) glass aggregate or diatomite sand grains (0.1 to 0.5 millimeter in size); strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

2C—22 to 32 inches; very pale brown (10YR 8/2) very paragravelly ashy silt loam, light gray (10YR 7/2) moist; strong very fine and fine angular blocky structure with many fractures; hard, firm, slightly sticky and nonplastic; many very fine roots along fractures; common very fine and fine tubular pores; 50 percent weakly cemented paragravel; strongly effervescent; fine-earth fraction assumed to be high in content of diatoms and very high in content of volcanic glass; moderately alkaline (pH 8.4); abrupt smooth boundary.

2Cr—32 inches; very pale brown (10YR 8/2), unfractured, weakly cemented lacustrine deposits.

Range in Characteristics

Depth to paralithic contact: 20 to 35 inches

Particle-size control section: Clay content—18 to 27 percent by weighted average; fine sand or coarser material content—15 to 35 percent; volcanic glass content—30 to 90 percent in coarse silt to very coarse sand fractions

Depth to water table: 10 to 30 inches some time during February through April in most years (perched)

Other feature: The paralithic material below the contact is weakly cemented silty lacustrine deposits that have a high content of diatoms and volcanic glass.

A horizon
Value—5 or 6 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Texture—ashy silt loam
Clay content—15 to 25 percent
Organic matter content—0.2 to 0.8 percent
Reaction—moderately alkaline
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

Bw horizon
Value—6 or 7 dry, 3 to 5 moist
Chroma—1 or 2 dry, 3 or 4 moist
Texture—ashy silt loam, ashy silty clay loam, or ashy loam
Clay content—15 to 32 percent
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—0 to 10 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 4
Effervescence—slightly effervescent to violently effervescent

2C horizon
Texture—very paragravelly ashy silt loam or extremely paragravelly ashy silt loam
Clay content—15 to 25 percent
Pararock fragment content—35 to 80 percent paragravel
Reaction—moderately alkaline or strongly alkaline

Calcium carbonate equivalent—0 to 2 percent
Salinity (electrical conductivity)—0 to 4 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 4
Other feature—pararock fragments consist of fractured, weakly cemented silty lacustrine deposits

Zorravista Series

Depth class: Very deep to bedrock
Drainage class: Excessively drained
Landscape: Basins
Landform: Semi-stabilized sand dunes and sand sheets
Parent material: Eolian deposits derived from mixed volcanic rock
Slope range: 0 to 8 percent
Elevation: 4,390 to 4,540 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days

Taxonomic classification: Mixed, mesic Xeric Torripsamments

Typical Pedon

Zorravista fine sand, 0 to 5 percent slopes, in an area of rangeland, in map unit 689, Lake County, Oregon; in the southwest corner of section 32, T. 32 S., R. 20 E.; U.S. Geological Survey Coglan Buttes 7.5-minute topographic quadrangle; latitude 42 degrees, 44 minutes, 51 seconds north and longitude 120 degrees, 23 minutes, 18 seconds west; NAD 83. (Colors are for dry soil unless otherwise stated.)

A—0 to 4 inches; pale brown (10YR 6/3) fine sand, dark brown (10YR 3/3) moist; single grain; loose, very friable, nonsticky and nonplastic; many fine roots; many very fine interstitial pores; slightly effervescent; moderately alkaline (pH 7.9); clear smooth boundary.
C1—4 to 12 inches; pale brown (10YR 6/3) fine sand, dark brown (10YR 3/3) moist; single grain; loose, very friable, nonsticky and nonplastic; common fine roots; many very fine pores; slightly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
C2—12 to 24 inches; brown (10YR 5/3) and pale brown (10YR 6/3) loamy fine sand, dark brown (10YR 3/3) moist; single grain; loose, friable, nonsticky and nonplastic; few fine roots; many very fine pores; slightly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
C3—24 to 60 inches; grayish brown (10YR 5/2) and pale brown (10YR 6/3) loamy fine sand, dark brown (10YR 3/3) moist; single grain; loose, very friable, nonsticky and nonplastic; few fine roots; many very fine interstitial pores and few fine tubular pores; slightly alkaline (pH 7.4).

Range in Characteristics

Depth to bedrock: More than 60 inches
Particle-size control section: Clay content—3 to 5 percent

A horizon
Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—fine sand
Clay content—3 to 5 percent

Organic matter content—0.2 to 0.6 percent
Reaction—moderately alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 2 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 2

C horizon
Hue—10YR or 2.5Y
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—fine sand, sand, or loamy fine sand
Clay content—3 to 5 percent
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—0 to 1 percent
Salinity (electrical conductivity)—0 to 16 millimhos per centimeter
Sodicity (sodium adsorption ratio)—0 to 20

Formation of the Soils

Soil is the collection of natural bodies on the earth's surface that contains living matter and is capable of supporting plants. The nature of a soil depends upon the combination and interaction of five factors—climate, plant and animal life, parent material, topography, and time. The relative influence of each factor varies from place to place, and in some places one factor is dominant over the others. The climate, parent material, vegetation, and topography in this survey area are highly variable. The soil-forming factors of climate, plant and animal life, and parent material are discussed separately in this section. The factors of time and topography are grouped together and discussed under the heading "Geomorphology and Associated Landforms."

Climate

Climate, particularly moisture and temperature, greatly influences soil formation. The chemical and physical reactions taking place in soils are controlled largely by climate. Water dissolves soluble material in soils, and it transports material from one part of a soil to another. Water is necessary for the growth of plants and other organisms that contribute organic matter to soils.

Temperature affects the rate of chemical reactions and of physical breakdown caused by the freezing of water. Freezing and thawing of water causes expansion and contraction and influences the movement of soil particles and rock fragments in soils. The kind and amount of living organisms in and on a soil determine the kind and amount of organic matter added to the soil. The rate of decomposition of organic matter is controlled by temperature and moisture. When soils are moist and warm, weathering and organic matter decomposition can occur. When they are dry or cold, reactions occur at a slow rate and chemical weathering may cease.

The past and present climatic conditions in the survey area have greatly influenced soil formation. Soil moisture and temperature vary greatly within the survey area because of the differences in the landscape. Precipitation ranges from about 8 inches in the basins and valleys to about 35 inches on the forested mountains, hills, and lava plateaus. Precipitation falls as rain and snow from late in fall to late in spring, and occasional thunderstorms occur in summer as a result of the maritime tropical airmasses. These airmasses also cause heavy rainfall in winter, which runs off into the basins and valleys (Houghton and others, 1975.). Soil temperatures conducive to chemical reactions are present from about March through November at the lower elevations and from May through October at the higher elevations.

The climate in the survey area has been cyclic during the past 15,000 years. Wetter and drier cycles have occurred throughout this period, and the resulting erosion and deposition of soil material is evident in the soil profiles and in the many shoreline deposits around the basins. About 10,000 years ago, the climate was warmer and drier than it is today. The basin lakes became very shallow, and extensive areas of playas were exposed. About 2,000 to 4,000 years ago, the climate was cooler and more moist than it is today. This resulted in the expansion of Abert and Silver Lakes to levels higher than the present levels (Allison, 1982.). Marshes formed during this period of lake expansion. The Bridgewell and Paulina soils, which have a thick mollic epipedon, exhibit characteristics from this wetter environment. The climatic changes are also reflected in the soils on lava plateaus, fan remnants, and terraces. The dense claypan (argillic horizon), such as in the Anawalt, Booth, Freznik, Ratto, and Swalesilver soils, and the duripan, such as in the Deppy and Tumtum soils, are evidence of a climate that provided a stronger weathering environment than the present climate. The surface horizon of these soils and others is thin and low in content of organic matter, and it reflects the present-day climate.

The present climate is characterized by mesic, frigid, and cryic soil temperature regimes and aquic, aridic, and xeric soil moisture regimes. The interaction of these regimes with the other soil-forming factors contributes to the development of specific soil characteristics.

The soils in the basins have a mesic or frigid soil temperature regime and an aquic, aridic, or xeric soil moisture regime. The soils on the shrub-covered lava plateaus, hills, and mountains have a mesic, frigid, or cryic soil temperature regime and an aridic or xeric soil moisture regime. The soils on the forested mountains, hills, and high plateaus have a frigid or cryic soil temperature regime and a xeric soil moisture regime.

The soils in basins that have an aquic moisture regime and reducing condition because of a lack of oxygen show little evidence of development. Because the rate of decomposition is slow, accumulation of organic matter is the primary evidence of soil formation. These soils typically are Mollisols and Inceptisols, and they include soils of the Bridgewell and Paulina series (Aquandic Endoaquolls), Ozamis series (Fluvaquentic Haplaquolls), Boravall and Reese series (Aeric Halaquepts), Fossilake series (Aquandic Halaquepts), and Pitcheranch series (Aquandic Endoaquepts).

The soils in basins and on plateaus that have an aridic moisture regime (8 to 12 inches of precipitation) typically exhibit minimal accumulation of organic matter on the surface and have a weak argillic horizon or have weak structural development in the subsoil. These soils typically are Aridisols and Mollisols, and they include soils of the Helphenstein series (Sodic Aquicambids), McConnel and McNye series (Xeric Haplocambids), Southcat series (Sodic Haplocambids), Thornlake and Turpin series (Sodic Xeric Haplocambids), Fitzwater and Pait series (Aridic Haploxerolls), and Flagstaff series (Typic Aquisalids). Some of the soils on these landforms have a dense, clayey argillic horizon, which developed as a result of past climatic conditions. Examples include the Anawalt series (Lithic Xeric Haplargids), Ratto series (Xeric Argidurids), and Connleyhills series (Vitritorrandic Argixerolls).

The soils in basins and on plateaus that have a xeric or aridic bordering on xeric moisture regime (12 to 16 inches of precipitation) exhibit a thin or thick mollic epipedon, an accumulation of carbonate or silica, and argillic horizon development. These soils typically are Mollisols, and they include soils of the Carryback series (Vertic Palexerolls), Cleavage series (Lithic Argixerolls), Giranch and Meld series (Vitritorrandic Durixerolls), Lakeview series (Cumulic Haploxerolls), Norcross series (Vitrandic Durixerolls), and Vitale series (Typic Argixerolls).

On the steep, shrub-covered dissected plateaus, hills, and mountains, the soils range from those on south-facing slopes at the low elevations that have an aridic moisture regime and a mesic temperature regime and those on north-facing slopes at the low elevations that have an aridic moisture regime and a frigid temperature regime to those on south- and north-facing slopes at the higher elevations that have a xeric moisture regime and a cryic temperature regime. Precipitation ranges from about 10 to 18 inches. Effective moisture for plant growth and soil development is significantly higher in the soils on the north-facing slopes. The thickness of the epipedon increases as elevation increases, and it is thickest in the soils on north-facing slopes. The depth to carbonates increases as elevation increases, and the corresponding actual and effective moisture also increase. Weak to strong structural development is dominant throughout the subsoil, reflecting the influence of the active side slope topography.

Soils of the Felcher series (Xeric Haplocambids) are on south-facing slopes and have an aridic moisture regime and a mesic temperature regime. Soils of the Riddleranch series (Aridic Haploxerolls) are on north-facing slopes and have an aridic moisture regime and a frigid temperature regime. Soils of the Lambring and Westbutte series (Pachic Haploxerolls) and the Bullump series (Pachic Argixerolls) are on north- and south-facing slopes and have a xeric moisture regime and a frigid temperature regime. Soils of the Baconcamp series (Pachic Haplocryolls) and Clamp series (Lithic Haplocryolls) are on north-facing slopes and have a xeric moisture regime and a cryic temperature regime. The Hackwood series (Pachic Haplocryolls) and Krackle series (Xeric Haplocryolls) are on north- and south-facing slopes.

The forested mountains, hills, and plateaus receive about 12 to 35 inches of precipitation. Elevation is about 4,370 to 6,010 feet. The soils have a frigid or cryic temperature regime and a xeric moisture regime.

Soils that have a frigid temperature regime typically are at elevations of about 4,370 to 5,890 feet, and those that have a cryic temperature regime are at elevations of about 6,010 feet. Soil temperature regimes are highly dependent on aspect and cold air drainage patterns. Ponderosa pine is associated with the soils that are frigid, and lodgepole pine and white fir are associated with the soils that are cryic. Western juniper, ponderosa pine, white fir, and lodgepole pine plant communities are associated with the soils that are xeric. The parent material from which the soils develop under these plant communities and the soil moisture and temperature regimes strongly affect soil morphology. A thick mollic epipedon is typical in the frigid and xeric soils that formed in material derived from basalt and tuff with a significant admixture of volcanic ash, resulting in andic soil properties. Examples are soils of the Laidlaw and Wanoga series (Humic Vitrixerands) and Henkle series (Lithic Vitrixerands). Soils that have a thick mollic epipedon, a distinct argillic horizon, and minimal influence of volcanic ash include those of the Royst and Winterim series (Pachic Argixerolls). Andic soil properties are also dominant in the solum of cryic and xeric soils that formed in a mantle of volcanic ash as much as 10 feet thick. However, a thick mollic epipedon is replaced by an ochric epipedon because of less accumulation of organic matter. Examples are soils of the Shanahan, Shukash, and Steiger series (Xeric Vitricryands).

Plant and Animal Life

Living organisms, especially the higher plants, are active in soil formation. The changes they bring about depend mainly on the life processes peculiar to each kind of organism. The kinds of organisms that live on and in soils are determined, in turn, by the climate, parent material, topography or relief, and age of soils. In this survey area, the effects of climate on vegetation are significant to soil formation.

Plant cover helps to reduce erosion and stabilize the soil surface. Leaves, twigs, roots, and the remains of entire plants accumulate on the surface of soils and are decomposed by micro-organisms, earthworms, and other soil fauna. Plant roots widen cracks in the underlying rock, which permits water to penetrate. The uprooting of trees by wind mixes soil layers and loosens the underlying material. Living organisms contribute to important processes such as the accumulation of organic matter, mixing of the soil profile, cycling of nutrients, stabilization of soil structure, and addition of nitrogen.

The soils in this survey area formed under three major types of plant cover, which are influenced by temperature and moisture. Salt-desert shrubs are dominant on the lakebeds, alluvial flats, and low sodic terraces. Grasses and shrubs are dominant on the nonsodic terraces and plateaus. Mixed conifer forests are dominant on the higher, more moist mountains, hills, and high plateaus.

The salt-desert shrubs and grasses on the lakebeds and alluvial flats consist of numerous plants that tolerate salinity, sodicity, and wetness. Plants such as shadscale, black greasewood, spiny hopsage, basin big sagebrush, basin wildrye, alkali sacaton, inland saltgrass, alkali cordgrass, sedge, hardstem bulrush, tufted hairgrass, and Indian ricegrass are dominant. These typically are shallow-rooted plants, and layers of duff are not present except in areas immediately under individual shrubs. The vegetation in many areas is sparse. In wet areas adjacent to open water areas, cattails and various sedges are present and contribute to increased organic matter accumulation in the upper soil layers.

The grasses and shrubs on the nonsodic lake terraces, fans, and low plateaus make up the dominant plant community in the survey area. Plants include bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, Thurber needlegrass, bottlebrush squirreltail, low sagebrush, Wyoming big sagebrush, mountain big sagebrush, and antelope bitterbrush. Although layers of duff are not present, the plant cover is more continuous in these areas than on the adjacent low terraces. The shallow-rooted grasses are important in the development of surface soil structure and the accumulation of organic matter. The shrubs, which are more deeply rooted, are important in the development of subsoil structure.

The forested mountains, hills, and plateaus have the most abundant plant cover. Plants such as ponderosa pine, white fir, lodgepole pine, western juniper, mountain big sagebrush, common snowberry, antelope bitterbrush, Idaho fescue, and Wheeler bluegrass are dominant. These plants provide a layer of duff 1 to 3 inches thick that protects the soil from erosion. The surface layer typically is thick and dark colored because of the slow rate of decomposition of the organic matter.

Small animals, earthworms, insects, and micro-organisms influence the formation of soils in several ways. Seed-eating ants inhabit a high percentage of the soils on tablelands at the lower elevations. The mounds of plant material that remain show the significance of the ants in breaking down the remains of plants. Small animals burrow into the soil and mix the layers, which improves soil structure. Earthworms and other small invertebrates feed on the organic matter in the upper few inches of soil material. They slowly, but continually, mix the soil material and alter its chemistry. Bacteria, fungi, and other micro-organisms hasten the weathering of rocks and the decomposition of organic matter.

Man also has influenced soil development. Management practices such as irrigation, drainage, reclamation, land leveling, and fertilizing have changed the environment of the soils in Fort Rock and Christmas Valleys.

Parent Material

The parent material of the soils in this survey area is derived from extensive interbedded basalt and tuff flows, rhyolitic dikes, and eolian ash deposits from Mt. Mazama (Green and others, 1972; Larson, 1965; Muntzert, 1969; Walker, 1963; Walker and others, 1967; Walker and Repenning, 1965) and in places, Newberry Craters. The basin and mountain range landscape is a result of the faulting and tilting of the flows. The last major fault episode resulted in fault-block mountain ranges. The displacement along the fault and the exposed north- to south-trending escarpments are 5,000 feet high or more from base to summit (Peterson and McIntyre, 1970). An exposed flow can be seen along Abert Rim. Good examples can also be seen along Winter Rim, Hart Mountain, and Dougherty Slide. The parent material of the soils in basins is derived from these flows.

The soils on the lakebeds and low terraces formed in lacustrine deposits from the Pleistocene lakes episode. These deposits are very thick and typically are medium textured and fine textured. Sandy material, where present, is below a depth of 40 inches. Soils that formed in this material include loamy soils of the Helphenstein, Icene, Mesman, Ozamis, Reese, and Turpin series and clayey soils of the Silverash and Overallflat series. Scattered throughout the basins are younger soils superimposed over these older soils. These younger soils formed in eolian sand deposits, colluvial fan material, volcanic ash deposits, and coarse-textured alluvial lakeshore deposits. Soils that formed in eolian sand include those of the Kewake and Zorravista series. Soils that formed in colluvial fan material include those of the Pait series. Soils that formed in eolian volcanic ash over old lacustrine deposits include those of the Bonnick and Fort Rock series. Soils that formed in lakeshore deposits include those of the Hinton, McConnel, McNye, and Wildhill series.

The soils on the higher terraces, fan remnants, and alluvial fans formed in older alluvium with an influence of volcanic ash in some areas. These terrace deposits are very thick, as is evident from the relief and topography of these landforms. The soils typically are coarse textured and medium textured and overlie deposits of older alluvial gravel and cobbles. Soils that formed in this material include loamy soils of the Clurde, Deppy, Enko, and Tumtum series, sandy soils of the Toll series, and ashy soils of the Giranch and Meld series.

The soils on plateaus formed in colluvium and residuum derived dominantly from basalt and tuff. Because the degree of soil development varies within short distances in these areas, erosional and depositional episodes may have occurred prior to the faulting and uplifting of the fault-block plateaus. The soils are fine textured and medium textured, are high in content of smectitic clay, and have few rock fragments other than those on the surface. Soils that formed in this material include clayey soils of the Anawalt, Carryback, Drakesflat, Fertaline, Freznik, Merlin, and Ninemile series and loamy soils of the Brace, Coztur, and Raz series.

The soils on hills and mountains formed in colluvium and residuum derived from basalt, tuff, and rhyolite. The soils are typically fine textured and medium textured and have varying amounts of rock fragments. The kind and amount of clay minerals are associated with a change in climate and the amount of weathering. Clayey soils that have a high content of smectitic clay include those of the Carryback, Chen, Erakatak, Royst, and Winterim series. Loamy soils that have mixed mineralogy and contain kaolinitic clay include those of the Bullump, Felcher, Lambring, and Westbutte series.

The soils on mountains, hills, and high plateaus in the northwestern part of the survey area formed in material derived from a thick mantle of volcanic ash from Mt. Mazama (7,700 years old) and Newberry Craters (1,400 years old). The soils typically are coarser textured, with the Newberry ash being the coarsest; have varying amounts of pumice fragments; have andic properties; and are light colored. Soils of the Henkle, Laidlaw, Lapine, Shanahan, Shukash, and Steiger series are examples.

Geomorphology and Associated Landforms

Geomorphology is the study of the configuration of the earth‘s surface, including the classification, description, nature, origin, and development of landforms. The major landscapes in the survey area include basins, plateaus, hills, and mountains. The basins are comprised of lakebeds, lake terraces, dunes, and alluvial and colluvial fans. The lava plateaus are comprised of low to high plateaus with upland basins and narrow flood plains. The hills and mountains are comprised of active and stable slopes. These landscapes and their component landforms greatly influence soil formation.

Basins

The soils in basins typically receive 8 to 12 inches of precipitation, but it ranges to 14 inches. The mean annual air temperature ranges from 43 to 50 degrees F. Elevation is about 4,150 to 5,560 feet. The landforms in the basins have been affected by faulting. Because of this tectonic displacement, terraces that are equal in age are at different elevations across a basin. This makes it difficult to interpret soil-geomorphic relationships.

Lakebeds are of the Holocene and are at the lowest positions in the lake basins. These areas are equivalent in geomorphic age to the Horseshoe geomorphic surface of the Willamette Valley (Balster and Parsons, 1968). The soils commonly are ponded annually for long periods. Vegetation is sparse or is absent in many areas. Because the soils are wet for long periods, soil development is minimal. The main evidences of soil formation are accumulations of organic matter and weak structural development. The soils associated with these landforms include those of the Helphenstein series (Sodic Aquicambids), Flagstaff series (Typic Aquisalids), Fossilake series (Aquandic Halaquepts), Ozamis series (Fluvaquentic Haplaquolls), Bridgewell and Paulina series (Aquandic Endoaquolls), and Reese series (Duric Halaquepts). The Bridgewell, Paulina, and Ozamis soils have a mollic epipedon. The Helphenstein, Flagstaff, Fossilake, and Reese soils have a cambic horizon. Also included within the lakebeds landform are the Abert and Thornlake soils (Xeric Haplocambids), which are slightly higher, well drained, and not subject to ponding. These soils have an ochric epipedon and a cambic horizon. All of the soils on lakebeds are subject to deposition and erosion. The Ozamis soils also have thin strata of volcanic ash or pumice at a depth of 40 inches or less. In other soils, such as those of the Abert, Bridgewell, Flagstaff, Fossilake, and Thornlake series, an influence of volcanic ash and pumice from the eruption of Mt. Mazama about 6,600 years ago is throughout the pedons (Allison, 1982).

Sodic lake terraces are of the Holocene and are adjacent to lakebeds. These terraces are equivalent in geomorphic age to the Ingram geomorphic surface of the Willamette Valley, but they also include remnants of the Winkle geomorphic surface (Balster and Parsons, 1968) and the Turupah Formation of the Lahonton Valley Group (Birkeland, 1967; Birkeland, 1968; Birkeland and others, 1971; Morrison, 1964; Morrison, 1968). The soils on these terraces are influenced by sodium and salts deposited by receding pluvial lakes (Allison, 1982; Conrad, 1953). These soils are nearly level to gently sloping. The moderately well drained to poorly drained soils in the lower, nearly level positions correlate to the Ingram geomorphic surface. Soils of the Borovall series (Aeric Halaquepts) and Icene series (Typic Aquisalids) are examples. These soils have an ochric epipedon with minimal organic matter accumulation and a cambic horizon with weak structural development. The well drained soils in the higher positions correlate to the Winkle geomorphic surface. Soils of the Mesman series (Xeric Natrargids) and Turpin series (Xeric Sodic Haplocambids) are examples. These soils have an ochric epipedon with minimal organic matter accumulation and a weakly developed argillic horizon or strongly developed cambic horizon.

Nonsodic lake terraces are similar in position and age to the sodic lake terraces. The soils are well drained or somewhat excessively drained and are not influenced by sodium or salts. Soils such as those of the Rabbithills series (Xereptic Haplodurids) and Catlow and Clurde series (Durinodic Xeric Haplocambids) have an ochric epipedon with minimal organic matter accumulation and a cambic horizon reflective of pedogenic soil characteristics associated with the Ingram geomorphic surface. The presence of a duripan in soils such as those of the Rabbithills series may reflect past fluctuating water levels of Pleistocene lakes. Soils such as those of the Bonnick, Fort Rock, and Tuffcabin series (Vitritorrandic Haploxerolls) have a mollic epipedon and reflect an older Winkle age lake terrace. The volcanic ash influence in these soils is dominantly from the eruption of Mt. Mazama. The Tuffcabin soil is in a beach ridge position and also has a buried argillic horizon that reflects past climatic conditions.

Dunes are of the Holocene and are associated with the lakebeds and lake terraces. Dunes typically are on the more easterly edge of the basins and valleys and reflect effects of the prevailing wind from the southwest. Soil material continually is being added to or removed from the dunes, resulting in minimal soil development. Examples of soils on dunes include those of the Kewake and Salhouse series (Vitrandic Torripsamments) and Zorravista series (Xeric Torripsamments). All of these soils have an ochric epipedon and varying amounts of volcanic ash. The amount of and depth to salts, sodium, and carbonates also varies.

Alluvial and colluvial fans are of the Holocene and are associated with high water levels of Pleistocene lakes. These fans occur as alluvial shoreline deposits or colluvial deposits at the foot of fault-block escarpments. The fans correlate to the Dendritic Member of the Sehoo Formation of the Lahonton Valley Group (Morrison and Frye, 1965). The soils are very deep and commonly are gravelly or cobbly. They have a cambic horizon with weak structural development and an ochric epipedon with minimal organic matter accumulation. Examples are soils of the McConnel and McNye series (Xeric Haplocambids) on shoreline terraces. Soils at the foot of escarpments that receive supplemental moisture from runoff have a weak mollic epipedon. An example is soils of the Pait series (Aridic Haploxerolls).

Lava plateaus, hills, and mountains

The soils on lava plateaus, hills, and mountains receive 8 to 35 inches of precipitation annually (aridic and xeric). The mean annual air temperature is 40 to 50 degrees F (mesic, frigid, and cryic). Elevation ranges from 4,270 to 6,200 feet. These landscapes are characterized by volcanic flows, including basalt, rhyolite, and tuff, that have been uplifted by faulting. In addition, some upland areas in the northwestern part of the survey area have been heavily influenced by deep deposits of volcanic ash and pumice. Vegetation ranges from desert to forest plant communities.

Lava plateaus are characterized by the absence of appreciable relief. Slopes typically are less than 15 percent, but they range to as much as 30 percent in areas that are dissected as a result of erosional processes. The soils on these landscapes are equivalent in geomorphic age to the Calapooyia geomorphic surface of the Willamette Valley (Birkeland and others, 1971) and the lower member of the Eetza Formation of the Lahonton Valley Group (Morrison, 1964; Morrison, 1965; Morrison, 1967). These soils reflect both present and past soil formation processes or episodes. Many of the soils have an argillic horizon, but the soils range from ashy to clayey. The presence or absence of a duripan is also variable and may be related to past climatic conditions. Because the distinct diagnostic subhorizons vary across this relatively uniform landform, the soil formation processes appear to have been interrupted by different erosional and depositional episodes with material such as eolian volcanic ash. Soils on lava plateaus that receive less than about 12 inches of precipitation annually dominantly have an ochric epipedon. Examples include soils of the Boilout series (ashy Vitrixerandic Argidurids), Brace series (fine-loamy Xeric Argidurids), Anawalt series (clayey Lithic Xeric Haplargids), Raz series (loamy Xeric Haplodurids), and Ratto series (clayey Xeric Argidurids). Soils on lava plateaus that receive more than about 12 inches of precipitation annually dominantly have a mollic epipedon. Examples include soils of the Ninemile series (clayey Lithic Argixerolls), Carryback and Booth series (fine Vertic Palexerolls), Merlin series (clayey-skeletal Lithic Argixerolls), and Moonbeam series (clayey Vitritorrandic Durixerolls). In the more northwestern part of the survey area, soils on lava plateaus that have frigid and cryic temperatures and receive more than 12 inches of precipitation annually have been influenced significantly by deep deposits of volcanic ash and pumice. Soils that have andic properties include those of the Laidlaw series (ashy Humic Vitrixerands), Sisters series (ashy over loamy Humic Vitrixerands), Shukash series (ashy over loamy-skeletal Xeric Vitricryands), and Shanahan series (ashy over loamy Xeric Vitricryands).

Upland basins, stream terraces, and depressions of flood plains are of the Holocene and are equivalent in geomorphic age to the Ingram geomorphic surface of the Willamette Valley (Birkeland and others, 1971). The soils on stream terraces and in depressions of flood plains reflect past episodes of cutting and filling during periods of flooding. These soils have a mollic epipedon, and the alluvial deposits in which the soils formed include sandy, loamy, and ashy material. Examples include soils of the Carvix series (fine-loamy Aridic Haploxerolls), Chinarise series (ashy Vitrandic Haploxerolls), Embal and Oatmanflat series (ashy Vitritorrandic Haploxerolls), Paulina taxadjunct (ashy-skeletal Aquandic Endoaquolls), and Snakepit series (sandy Cambidic Durixerolls). The soils in depressions of basins reflect past climatic conditions or episodes of erosion and deposition. These soils have a dense clay layer that has a high content of smectitic clay. Examples include soils of the Chancelakes series (fine Xeric Epiaquerts), Silverash series (fine Aquandic Palexeralfs), and Swalesilver series (fine Aquic Palexeralfs). Many of the depressions of basins, stream terraces, and drainageways of flood plains are narrow and small and are associated with older geomorphic surfaces such as the Dolph, Eola, and Looney surfaces (Birkeland and others, 1971; Parsons and others, 1970).

Hills and mountains are characterized by stable and active slopes with extremely variable soils. Slopes range from 0 to 65 percent. Because of the variability of the parent material and climate, soil development ranges from weak to strong. On the more active, steep slopes, soils such as those of the Felcher series (Xeric Haplocambids), Riddleranch series (Aridic Haploxerolls), Wildcatbutte series (Vitritorrandic Haploxerolls), Glencabin series (Vitrandic Haploxerolls), Westbutte series (Pachic Haploxerolls), and Ipsoot series (Xeric Vitricryands) reflect soil development changes in relation to the increase in soil moisture and decrease in soil temperature. In the less dissected areas, the soils typically exhibit a stronger degree of development that is associated with the Dolph or Eola geomorphic surface of the Willamette Valley (Birkeland and others, 1971) and the Lovelock Formation of the pre-Lake Lahonton lacustrine surfaces (Morrison, 1966). Soils associated with the more stable landscapes include those of the Baconcamp series (Pachic Haplocryolls), Derallo series (Vitritorrandic Argixerolls), Chesebro series (Vitrandic Argixerolls), Royst series (Pachic Argixerolls), and Wanoga series (Humic Vitrixerands).

References

Allison, I.S. 1982. Geology of fluvial Lake Chewaucan, Lake County, Oregon. Oregon State University Geologic Study 7.

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Balster, C.A., and R.B. Parsons. 1968. Geomorphology and soils, Willamette Valley, Oregon. Oregon Agricultural Experiment Station Special Report 265.

Birkeland, P.W. 1967. Correlation of soils of stratigraphic importance in western Nevada and California and their relative rates of profile development. *In* Quaternary Soils. International Association on Quaternary Research, VIIth Congress Proceedings, volume 9.

Birkeland, P.W. 1968. Correlation of Quaternary stratigraphy of the Sierra Nevada with that of the Lake Lahontan area. *In* Means of Correlation of Quaternary Successions. International Association on Quaternary Research, VIIth Congress Proceedings, volume 8.

Birkeland, P.W., D.R. Crandell, and G.B. Richmond. 1971. Status of correlation of Quaternary stratigraphic units in the western conterminous United States. Quaternary Research, volume 1.

Conrad, C.F. 1953. Geology of the Anna River section, Summer Lake, Oregon. M.S. thesis, Oregon State University.

Green, Robert C., George W. Walker, and Raymond E. Corcoran. 1972. Geologic map of the Burns quadrangle, Oregon. U.S. Geological Survey Miscellaneous Geological Survey Map I-680.

Houghton, John G., Clarence M. Sakamoto, and Richard O. Gifford. 1975. Nevada's weather and climate. Nevada Bureau of Mines and Geology Special Publication 2.

Larson, E.E. 1965. The structure, stratigraphy, and paleomagnetics of the Plush area, southeastern Lake County, Oregon. Ph.D. thesis, University of Colorado.

Morrison, R.B. 1964. Lake Lahontan: Geology of the southern Carson Desert, Nevada. U.S. Geological Survey Professional Paper 401.

Morrison, R.B. 1965. Lake Bonneville: Quaternary stratigraphy of eastern Jordan Valley, south of Salt Lake City, Utah. U.S. Geological Survey Professional Paper 477.

Morrison, R.B. 1966. Predecessors of Great Salt Lake. *In* The Great Salt Lake: Guidebook to the geology of Utah.

Morrison, R.B. 1967. Principles of Quaternary stratigraphy. *In* Quaternary Soils. International Association on Quaternary Research, VIIth Congress Proceedings, volume 9.

Morrison, R.B. 1968. Means of time-stratigraphic division and long-distance correlation of Quaternary successions. *In* Means of Correlation of Quaternary Successions. International Association on Quaternary Research, VIIth Congress Proceedings, volume 8.

Morrison, R.B., and J.C. Frye. 1965. Correlation of the middle and late Quaternary successions of the Lake Lahontan, Lake Bonneville, Rocky Mountain (Wasatch Range), southern Great Plains, and eastern midwest areas. Nevada Bureau of Mines Report 9.

Muntzert, J.K. 1969. Geology and mineral deposits of the Brattain District, Lake County, Oregon. M.S. thesis, Oregon State University.

Parsons, R.B., C.A. Balster, and A.O. Ness. 1970. Soil development and geological surfaces, Willamette Valley, Oregon. Soil Science Society of America Proceedings 34: 485-491.

Peterson, Norman V., and James R. McIntyre. 1970. The geology and mineral resources of east Klamath County and west Lake County, Oregon. Oregon Department of Geology and Mineral Industries Bulletin 66.

Schoeneberger, P.J., D.A. Wysocki, E.C. Benham, and W.D. Broderson, editors. 2002. Field book for describing and sampling soils. Version 2.0. U.S. Department of Agriculture, Natural Resources Conservation Service.

Snyder, C.T., George Hardman, and F.F. Zdenek. 1964. Pleistocene lakes in the Great Basin. U.S. Geological Survey Miscellaneous Geologic Investigations Map I-916.

Society of American Foresters. 1980. Forest cover types of the United States and Canada.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://soils.usda.gov/

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436. http://soils.usda.gov/

Soil Survey Staff. 2003. Keys to soil taxonomy. 9th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

United States Department of Agriculture, Forest Service. 1985. Plant associations of the central Oregon pumice zone. Pacific Northwest Region. USFS-R6-ECOL-104-1985.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://soils.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.glti.nrcs.usda.gov/technical/publications/nrph.html

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://soils.usda.gov/

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

Walker, George W. 1963. Reconnaissance geologic map of the eastern half of the Klamath (AMS) quadrangle, Lake and Klamath Counties, Oregon. U.S. Geological Survey Mineral Investigations Field Studies Map MF-260.

Walker, George W., and Charles A. Repenning. 1965. Reconnaissance geological map of the Adel quadrangle, Lake, Harney, and Malheur Counties, Oregon. U.S. Geological Survey Miscellaneous Geologic Investigations Map I-446.

Walker, George W., Norman V. Peterson, and Robert C. Green. 1967. Reconnaissance geological map of the east half of the Crescent quadrangle, Lake, Deschutes, and Crook Counties, Oregon. U.S. Geological Survey Miscellaneous Geologic Investigations Map I-493.

Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the “National Soil Survey Handbook” (available in local offices of the Natural Resources Conservation Service or on the Internet).

Abrupt textural change. A soil horizon boundary or thin transitional zone characterized by a considerable increase in clay that occurs at the contact between a surface layer, subsurface layer, subsoil, or substratum.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Albic horizon. An eluvial horizon that is at least 1 centimeter thick or more. The color of the soil material is largely determined by the color of primary sand and silt particles rather than by the color of their coatings.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial fan. A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl. A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Andesite. A fine-grained volcanic rock consisting mainly of plagioclase feldspar with small amounts of pyroxene, hornblende, or biotite. It is dark colored, mainly shades of gray or green.

Andic soil properties. A collection of physical and chemical properties that define the criteria for the Andisol order.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Argillite. Unusally hard, fine grained sedimentary rock, such as shale, mudstone, siltstone, and claystone, that commonly is black.

Aridic. A soil moisture regime common to a climate that lacks soil moisture available for plant growth during the growing season. The soils are dry for more than 50 percent of the growing season.

Ash (volcanic). Unconsolidated, pyroclastic material less than 2 millimeters in all dimensions; commonly called volcanic ash.

Ashflow. A highly heated mixture of volcanic gasses and ash traveling down a flank of a volcano or along the surface of the ground. It is produced by the explosive disintegration of viscous lava in a volcanic crater or by the explosive emission of gas-charged ash from a fissure. The solid material contained in a typical ashflow generally is unsorted and includes volcanic dust, pumice, scoria, and blocks in addition to ash.

Ashy (family particle-size class). A substitute class term used for the family particle-size in mineral soils.

Ashy (textural modifier; for example, ashy sandy loam). A term used to describe material in which the fine-earth fraction has 30 percent or more particles that are 0.02 to 2.0 millimeters in diameter. Of this, 5 percent or more is volcanic glass and the ammonium oxalate extractable aluminum plus $^1/_2$ the ammonium oxalate extractable iron times 60 added to the percentage of volcanic glass are equal to or more than 30.

Aspect. The direction toward which a slope faces. Also called slope aspect.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Badland. A landscape that is intricately dissected and characterized by a very fine drainage network with high drainage densities and short, steep slopes and narrow interfluves. Badlands develop on surfaces that have little or no vegetative cover overlying unconsolidated or poorly cemented materials (clays, silts, or sandstones) with, in some cases, soluble minerals, such as gypsum or halite.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Basalt. A fine-grained, dark-colored extrusive igneous rock composed primarily of calcic plagioclase and pyroxene, with or without olivine.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Basin. A low area in the earth’s crust, of tectonic origin, in which sediment has accumulated.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Blowout. A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed; the adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

Bottom land. An informal term loosely applied to various portions of a flood plain.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Breccia. Coarse grained, clastic rock made up of angular broken rock fragments that are held together by mineral cement or are in a fine-grained matrix.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Bulk density. The mass of soil per unit bulk volume. Moist bulk density refers to the oven-dry weight of a given volume of soil with moisture content at or near field moisture capacity.

Butte. An isolated, generally flat-topped hill or mountain with relatively steep slopes and talus or precipitous cliffs and characterized by summit width that is less than the height of bounding escarpments; commonly topped by a caprock of resistant material and representing an erosion remnant carved from flat-lying rocks.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Calcic horizon. An illuvial horizon in which secondary calcium carbonate or other carbonates have accumulated to a significant extent (Soil Survey Staff, 1999).

Calcium carbonate equivalent. The quantity of carbonates (CO3) in the soil, expressed as CaCO3 and as a percentage by weight of the fraction less than 2 millimeters in size.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow valley with high, precipitous walls in an area of high local relief.

Canyonland (general landscape). A deeply dissected landscape composed dominantly of relatively narrow flood plains or valley floors, commonly with considerable outcroppings of bedrock on steep slopes, ledges, or cliffs and with broad summits or interfluves.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Carbonates. Chemical compounds containing the carbonate ion C03 in combination with bases such as calcium, magnesium, potassium, and sodium.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Cinder. A glassy vesicular pyroclastic volcanic fragment that is 2 millimeters or more in all dimensions and is strongly cemented or stronger.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. See Redoximorphic features.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A dense, compact subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. The layer restricts the downward movement of water through the soil. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Coarse-loamy. A loamy particle-size class that is 15 percent or more fine sand or coarser, including fragments as much as 3 inches in diameter, and is less than 18 percent clay in the fine-earth fraction.

Coarse-silty. A loamy particle-size class that is less than 15 percent fine sand or coarser, including fragments as much as 3 inches in diameter, and is less than 18 percent clay in the fine-earth fraction.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (for example, direct gravitational action) and by local, unconcentrated runoff.

Compaction. The increase in soil bulk density as a result of applied loads or pressure. Compaction reduces porosity, water infiltration, and root penetration.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. See Redoximorphic features.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Consociation. A kind of soil map unit that is dominantly a single soil or miscellaneous area and similar soils.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Cordilleran ice sheet. The glacial ice sheet that covered much of the northern half of North America, from the eastern face of the Rocky Mountains to the Pacific Ocean, during the Pleistocene.

Corrosion (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Cryic. A soil temperature regime in which the mean annual soil temperature at a depth of 20 inches ranges from 33 to 46 degrees F. The mean summer soil temperature is less than 47 degrees for soils that have an O horizon, and it is less than 59 degrees for soils that do not have an O horizon.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Densic contact. A boundary between soil and coherent underlying material that restricts the penetration of roots, is not cemented, and is typically referred to as dense glacial till and as a Cd horizon.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depression. Any relatively sunken part of the earth’s surface, especially a low-lying area surrounded by higher ground, that has few, if any, surface drainage outlets.

Desert pavement. A natural, residual concentration or layer of wind-polished, closely packed gravel, boulders, and other rock fragments mantling a desert surface. It forms where wind action and sheetwash have removed all smaller particles or where rock fragments have migrated upward through sediments to the surface. It typically protects the finer grained underlying material from further erosion.

Diatomaceous earth. A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Dissimilar soils. Soils that behave differently and require different management than the named soils and similar soils in a map unit.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw. A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Dune. A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Durinodes. Nodules that are weakly cemented to indurated with silica oxide ($SiO2$).

Duripan. A subsurface soil horizon that is cemented by illuvial silica, commonly opal or microcrystalline forms of silica, to the degree that less than 50 percent of the volume of air-dry fragments will slake in water or hydrochloric acid.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Effervescence. The gaseous response exhibited as bubbles on the soil ped when drops of dilute (1:10) hydrochloric acid (HCl) are applied. This response typically indicates the presence of calcium carbonates ($CaCO3$).

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit. Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.

Fan remnant. A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.

Fault. A fracture or fracture zone of the earth with displacement along one side in respect to the other.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Fine-loamy. A loamy particle-size class that is 15 percent or more fine sand or coarser, including fragments as much as 3 inches in diameter, and is 18 to 34 percent clay in the fine-earth fraction.

Fine-silty. A loamy particle-size class that is less than 15 percent fine sand or coarser, including fragments as much as 3 inches in diameter, and is 18 to 34 percent clay in the fine-earth fraction.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers or streams; produced by stream or river action.

Foothills. A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).

Footslope. The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragmental. A particle-size class used to classify mineral soils that have less than 10 percent by volume fine-earth soil material.

Frigid. A soil temperature regime in which the mean annual soil temperature at a depth of 20 inches ranges from 33 to 46 degrees F. The mean summer soil temperature is more than 47 degrees for soils that have an O horizon. The difference between the mean winter soil temperature and the mean summer soil temperature is more than 9 degrees F.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Geomorphic surface. A mappable area of the earth's surface that has a common history; the area is of similar age and is formed by a set of processes during an episode of landscape evolution.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Gypsum. A mineral consisting of hydrous calcium sulfate.

Habitat type. The collective area occupied by a single plant association. It is defined and described on the basis of the vegetation and its associated environment.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology). A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Hill. A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope. A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Historic climax plant community. The plant community that was best adapted to the unique combination of factors associated with the ecological site. It was in a natural dynamic equilibrium with the historic biotic, abiotic, and climatic factors on its ecological site in North America at the time of European immigration and settlement.

Holocene. The epoch of the Quaternary period of geologic time, extending from the end of the Pleistocene (about 10,000 to 12,000 years ago) to the present.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

L horizon.—A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cd horizon.—Noncemented, root-restricting layer such as dense basal till.

Cr horizon.—Consolidated bedrock beneath the soil that has an extremely weakly cemented to moderately cemented rupture-resistance class.

R horizon.—Consolidated bedrock beneath the soil that has a strongly cemented or stronger rupture-resistance class.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties include depth to a seasonal high water table, the infiltration rate, and depth to a layer that significantly restricts the downward movement of water. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Indurated. Refers to having a hard, brittle consistency as a result of particles being held together by cementing substances such as silica, calcium carbonate, and iron. An indurated layer can be broken by a sharp blow of a hammer.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Interfluve (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream. A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Intrusive rock. Igneous rock derived from molten matter (magmas) that invaded pre-existing rock and cooled below the surface of the earth.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron accumulations. See Redoximorphic features.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Ksat. See Saturated hydraulic conductivity.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace. A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Landform. Any physical, recognizable form or feature on the earth’s surface that has a characteristic shape and range in composition and is produced by natural causes; it can span a wide range in size. Landforms provide an empirical description of similar portions of the earth’s surface.

Landscape (soils). An assemblage, group, or family of spatially related, natural landforms over a relatively large area; the land surface which the eye can comprehend in a single view.

Landslide. A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Lithic contact. A boundary between soil and coherent underlying material, typically bedrock. The bedrock has a cementation class of strongly cemented or stronger and is typically referred to as an R horizon.

Lithologic discontinuity. A significant change in particle-size distribution or mineralogy that indicates a difference in the material from which the soil horizons have formed.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy-skeletal. A particle-size class in which rock fragments 2 millimeters in diameter or larger make up 35 percent or more by volume. The fine-earth fraction is loamy.

Loess. Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength. The soil is not strong enough to support loads.

Major Land Resource Area (MLRA). A broad geographic land area characterized by a particular pattern of soils, geology, climate, water resources, and land use. An area is typically continuous, but small separate areas can occur.

Mass movement. A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses. See Redoximorphic features.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medial (family particle-size class). A substitute class term used for the family particle-size class in mineral soils.

Medial (textural modifier, such as medial loam). A USDA textural modifier used in conjunction with a USDA mineral soil texture to indicate unique physical and chemical properties. The properties are defined in Soil Taxonomy and are typically low bulk density, high content of iron and aluminum, and high retention of phosphate.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mesic. A soil temperature regime in which the mean annual temperature at a depth of 20 inches ranges from 47 to 58 degrees F. The difference between the mean winter soil temperature and the mean summer soil temperature is more than 9 degrees F.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline.

Microclimate. The climate of a small distinct area, as of a forest or city, or a confined space, as of a building or greenhouse.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Miscellaneous area. A kind of map unit component that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Moisture control section. The layer within a soil profile used to determine the soil moisture regime. The upper boundary is the depth to which a dry soil is moistened by 1 inch of water in 24 hours. The lower boundary is the depth to which a dry soil is moistened by 3 inches of water in 48 hours.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat. A USDA texture associated with organic soils that meet the degree of organic matter decomposition associated with hemic soil material.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. See Redoximorphic features.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Ochric epipedon. A surface horizon of mineral soil that is too light in color, too high in chroma, too low in organic carbon, or too thin to be a mollic, umbric, or histic epipedon.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Overland flow. Water that runs across the land after rainfall, either before it enters a watercourse or after it leaves a watercourse as floodwater or after it rises to the surface naturally from underground.

Overstory. The trees in a forest stand that form the upper crown cover. (See Understory.)

Oxidation. Any chemical reaction that removes electrons from a molecule or atom.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, duripan, placic horizon, plowpan,* and *traffic pan*.

Paralithic contact. A boundary between soil and coherent underlying material that can be dug with difficulty with a spade. It is referred to as weathered bedrock, has a cementation class of moderately cemented or weaker, and is typically referred to as a Cr horizon.

Pararock fragments. Fragments of rock that are 2 millimeters in diameter or more (e.g., paragravel, paracobble, or parastone). Pararock fragments have a moderately cemented to extremely weakly cemented rupture-resistance class.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual” and in this glossary. Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

See “Saturated hydraulic conductivity” for conversions of inches per hour to micrometers per second.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Plant association. A kind of climax plant community consisting of stands with essentially the same dominant species in corresponding layers.

Plant community. An assemblage of plants living together, reflecting no particular ecological status; a vegetative complex unique in its combination of plants.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology). A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playa deposits are fine grained and may or may not have a high water table and saline conditions.

Pleistocene. The epoch of geologic time from approximately 10,000 to 2 million years ago. The earlier of the two epochs comprising the Quaternary period. Also called the Glacial epoch.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings. See Redoximorphic features.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Puddling. Compaction of the soil surface during wet periods to the point that the soil particles are rearranged to a massive state.

Pumice. A light-colored, vesicular, glassy pararock fragment. The fragments are more than 2 millimeters in diameter and commonly have the composition of rhyolite. Pumice commonly has a specific gravity of less than 1.0 and is thereby sufficiently buoyant to float on water.

Pyroclastic. Pertaining to fragmental material produced by commonly explosive, aerial ejection of clastic particles from a volcanic vent.

Quaternary. The period of the Cenozoic era of geologic time, extending from the end of the Tertiary (about 2 million years ago) to the present and comprising two epochs, the Pleistocene (Ice Age) and the Holocene (Recent).

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
    A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
    B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
    C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chroma less than that of the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
    A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
    B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Reduction. Any chemical reaction in which there is uptake of an electron by a molecule or atom.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Restrictive feature. A nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly reduce the movement of water and/or air through the soil or that otherwise provide an unfavorable root environment.

Rhyodacite. A fine-grained volcanic rock consisting mainly of quartz and feldspar, with more plagioclase than orthoclase. Phenocrysts are common. Ryodacite is the extrusive equivalent of granodiorite.

Rhyolite. A light-colored, fine grained, extrusive igneous rock that typically contains quartz and feldspar minerals.

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riparian. Refers to areas adjacent to water or wetlands; vegetation is dependent on water or use and management directly impacts the water or wetlands.

Riser. The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Riverwash. Unstable areas of sandy, silty, clayey, gravelly, and cobbly sediment. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

Rock fragments. Rock or mineral fragments that are 2 millimeters in diameter or more (i.e., gravel, cobbles, stones, and boulders). Rock fragments have a strongly cemented or stronger rupture-resistance class.

Rock outcrop. Exposures of bare bedrock.

Rubble land. Areas that consist of cobbles, stones, and boulders, commonly at the base of mountains.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy. A particle-size class in which the texture of the fine-earth fraction is sand or loamy sand but not loamy very fine sand or very fine sand; it is less than 35 percent rock fragments by volume.

Sandy-skeletal. A particle-size class that is 35 percent or more, by volume, rock fragments 2 millimeters in diameter or larger. The fine-earth fraction is sandy.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (Ksat). The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy’s Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as “Ksat.” Terms describing saturated hydraulic conductivity are *very high*, 100 or more micrometers per second (14.17 or more inches per hour); *high*, 10 to 100 micrometers per second (1.417 to 14.17 inches per hour); *moderately high*, 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour); *moderately low*, 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour); *low*, 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour); and *very low*, less than 0.01 micrometer per second (less than 0.001417 inch per hour). To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Secondary carbonates and silica. Calcium carbonate and silica weathered from the soil matrix in the upper part of the soil and then transported and deposited in the lower part by water moving through the soil profile.

Sedimentary rock. A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope alluvium. Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded gravel or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill (in tables). The slow filling of ponds, resulting from restricted water transmission in the soil.

Slow water movement (in tables). Restricted downward movement of water through the soil. (See Saturated hydraulic conductivity.)

Slump. A mass movement process characterized by a landslide involving shearing and rotary movement of a generally independent mass of rock or earth along a curved slip surface. The mass (slump) has its axis parallel to the slope from which it descends. A slump surface commonly exhibits a reversed slope facing uphill.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to Ca^{++} + Mg^{++}. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. Originally formed near the level of the stream. Represents the remnants of an abandoned flood plain, streambed, or valley floor produced during a former state of fluvial erosion or deposition.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon that is lighter in color and lower in content of organic matter than the overlying surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Tephra. A collective term for all clastic volcanic material that is ejected from a vent during an eruption and transported through the air. It includes ash, blocks, cinders, lapilli, scoria, and pumice.

Terrace (conservation). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace. (geomorphology). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Tertiary. The period of geologic time from approximately 2 to 63 million years ago (radiometric dates). The earlier of the two geologic periods comprising the Cenozoic era.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Thrust fault. A fault with a dip of 45 degrees or less on which the hanging wall appears to have moved upward relative to the footwall.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Tread. The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Tuff. A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.

Understory. Plants in a forest community that grow to a height of 4.5 feet or less.

Upland. An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth’s surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Welded tuff. A glass-rich rock that has been indurated by the welding together of its glass shards under the combined action of the heat retained by particles, the weight of overlying material, and hot gasses.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Xeric. A soil moisture regime common to a climate having moist winters and dry summers. The soils are dry in the moisture control section for more than 45 consecutive days during the 4 months following the summer solstice and are moist for more than 45 consecutive days during the 4 months following the winter solstice.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1971 to 2000 at Summer Lake 1 S [8173], Alkali Lake [0118], Silver Lake Ranger Station [7817], and The Poplars [8420], Oregon.)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	*°F*	*°F*	*°F*	*°F*	*Units*	*In*	*In*	*In*		*In*
SUMMER LAKE 1 S											
January-----	41.7	23.9	32.8	58	1	22	1.56	0.47	2.55	4	4.6
February----	46.2	27.0	36.6	64	3	41	1.27	0.49	1.88	3	4.3
March-------	51.6	30.2	40.9	70	13	95	1.14	0.49	1.74	3	2.1
April-------	59.0	33.7	46.4	81	20	213	0.99	0.40	1.55	3	0.9
May---------	67.9	40.1	54.0	89	26	434	1.17	0.44	1.89	3	0.2
June--------	76.8	46.5	61.7	94	32	649	0.81	0.24	1.39	2	0.0
July--------	86.0	51.6	68.8	99	36	889	0.55	0.04	0.97	1	0.0
August------	85.5	50.1	67.8	100	35	862	0.53	0.04	0.89	1	0.0
September---	77.3	42.8	60.0	95	28	601	0.61	0.13	1.02	2	0.0
October-----	65.0	34.9	49.9	85	19	320	0.79	0.38	1.18	2	0.1
November----	48.8	28.8	38.8	69	9	74	1.67	0.50	2.64	4	2.3
December----	41.5	23.7	32.6	59	-1	20	1.65	0.39	2.62	4	4.5
Yearly:											
Average----	62.3	36.1	49.2	---	---	---	---	---	---	---	---
Extreme----	103.0	-16.0	---	101	-7	---	---	---	---	---	---
Total------	---	---	---	---	---	4,218	12.74	9.48	15.61	32	18.9

Average number of days per year with at least 1 inch of snow on the ground: 15

*See footnote at end of table.

Table 1.—Temperature and Precipitation—Continued

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	*°F*	*°F*	*°F*	*°F*	*Units*	*In*	*In*	*In*		*In*
ALKALI LAKE											
January-----	41.9	18.9	30.4	60	-9	16	0.47	0.19	0.75	1	2.5
February----	46.2	22.6	34.4	66	-6	32	0.47	0.15	0.80	1	1.9
March-------	51.7	25.7	38.7	71	4	67	0.79	0.37	1.20	2	1.7
April-------	59.4	29.0	44.2	82	13	167	0.91	0.29	1.42	3	1.4
May---------	68.7	35.1	51.9	91	20	367	1.12	0.38	1.76	3	0.5
June--------	78.0	42.1	60.1	97	27	593	0.83	0.31	1.34	2	0.1
July--------	87.0	47.2	67.1	102	33	834	0.65	0.02	1.20	1	0.0
August------	86.1	45.7	65.9	102	31	798	0.69	0.00	1.13	1	0.0
September---	78.0	37.1	57.5	96	22	521	0.52	0.00	0.93	1	0.0
October-----	65.4	29.3	47.4	87	10	245	0.71	0.15	1.26	2	0.3
November----	49.3	23.6	36.5	72	-1	55	0.64	0.23	1.05	2	2.2
December----	42.1	18.5	30.3	60	-11	17	0.60	0.12	1.02	2	3.9
Yearly:											
Average----	62.8	31.2	47.0	---	---	---	---	---	---	---	---
Extreme----	105.0	-33.0	---	105	-17	---	---	---	---	---	---
Total------	---	---	---	---	---	3,712	8.40	5.31	9.56	21	14.4

Average number of days per year with at least 1 inch of snow on the ground: 16

*See footnote at end of table.

Table 1.—Temperature and Precipitation—Continued

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	*°F*	*°F*	*°F*	*°F*	*Units*	*In*	*In*	*In*		*In*
SILVER LAKE RANGER STATION											
January-----	40.0	21.2	30.6	58	-9	10	0.96	0.32	1.59	3	4.4
February----	43.6	23.0	33.3	63	-4	18	0.69	0.26	1.06	2	3.6
March-------	50.0	25.3	37.6	69	5	48	0.80	0.30	1.28	3	2.6
April-------	57.7	28.1	42.9	81	11	145	0.74	0.26	1.22	2	1.3
May---------	66.2	33.8	50.0	88	17	317	1.11	0.28	1.91	2	0.5
June--------	74.7	39.5	57.1	93	24	512	0.81	0.19	1.38	2	0.0
July--------	83.3	43.9	63.6	98	28	730	0.60	0.08	1.04	1	0.0
August------	83.6	43.9	63.7	98	29	733	0.59	0.01	1.05	1	0.0
September---	75.7	36.4	56.1	93	20	480	0.58	0.10	1.04	1	0.0
October-----	64.0	29.5	46.7	85	10	234	0.61	0.10	1.07	2	0.2
November----	46.5	25.7	36.1	68	0	49	1.10	0.31	1.68	3	2.0
December----	38.6	19.1	28.8	57	-14	10	1.06	0.25	1.70	4	5.0
Yearly:											
Average----	60.3	30.8	45.5	---	---	---	---	---	---	---	---
Extreme----	105.0	-33.0	---	100	-18	---	---	---	---	---	---
Total------	---	---	---	---	---	3,284	9.65	6.79	11.15	26	19.6

Average number of days per year with at least 1 inch of snow on the ground: 9

*See footnote at end of table.

Table 1.—Temperature and Precipitation—Continued

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	*°F*	*°F*	*°F*	*°F*	*Units*	*In*	*In*	*In*		*In*
THE POPLARS											
January-----	40.3	20.2	30.2	57	-8	9	1.34	0.45	2.13	5	5.2
February----	44.5	21.1	32.8	64	-12	14	1.11	0.43	1.65	4	4.5
March-------	52.0	25.3	38.6	72	4	52	1.23	0.49	1.84	4	2.3
April-------	59.6	28.1	43.9	81	11	149	0.97	0.47	1.46	3	0.9
May---------	66.8	34.1	50.5	89	16	327	1.24	0.66	1.78	4	0.4
June--------	74.2	39.8	57.0	93	25	507	0.87	0.40	1.34	2	0.0
July--------	82.8	43.4	63.1	97	28	696	0.79	0.15	1.33	1	0.0
August------	83.8	42.1	63.0	98	29	706	0.57	0.01	1.17	1	0.0
September---	75.4	34.1	54.7	93	15	432	0.50	0.01	0.91	1	0.0
October-----	64.5	27.7	46.1	86	8	209	0.68	0.36	1.02	2	0.1
November----	46.3	23.3	34.8	69	-3	31	1.30	0.40	2.06	4	2.8
December----	39.7	17.0	28.3	58	-13	6	1.23	0.34	1.71	3	5.6
Yearly:											
Average----	60.8	29.7	45.2	---	---	---	---	---	---	---	---
Extreme----	101.0	-33.0	---	99	-18	---	---	---	---	---	---
Total------	---	---	---	---	---	3,138	11.84	7.66	13.38	34	21.8

Average number of days per year with at least 1 inch of snow on the ground: 16

---

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold: 40 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1971 to 2000 at Summer Lake 1 S [8173], Alkali Lake [0118], Silver Lake Ranger Station [7817], and The Poplars [8420], Oregon.)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
SUMMER LAKE 1 S			
Last freezing temperature in spring:			
1 year in 10 later than--	May 5	May 20	June 14
2 years in 10 later than--	April 27	May 15	June 8
5 years in 10 later than--	April 12	May 4	May 29
First freezing temperature in fall:			
1 year in 10 earlier than--	October 1	September 17	September 6
2 years in 10 earlier than--	October 8	September 23	September 11
5 years in 10 earlier than--	October 22	October 5	September 21
ALKALI LAKE			
Last freezing temperature in spring:			
1 year in 10 later than--	May 30	June 11	July 7
2 years in 10 later than--	May 24	June 5	June 30
5 years in 10 later than--	May 12	May 24	June 17
First freezing temperature in fall:			
1 year in 10 earlier than--	September 18	September 2	August 18
2 years in 10 earlier than--	September 23	September 8	August 24
5 years in 10 earlier than--	October 4	September 21	September 5

Table 2.—Freeze Dates in Spring and Fall—Continued

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
SILVER LAKE RANGER STATION			
Last freezing temperature in spring:			
1 year in 10 later than--	June 20	July 9	July 21
2 years in 10 later than--	June 12	July 1	July 15
5 years in 10 later than--	May 27	June 17	July 4
First freezing temperature in fall:			
1 year in 10 earlier than--	September 6	August 20	August 8
2 years in 10 earlier than--	September 13	August 28	August 14
5 years in 10 earlier than--	September 26	September 11	August 27
THE POPLARS			
Last freezing temperature in spring:			
1 year in 10 later than--	June 12	July 16	July 21
2 years in 10 later than--	June 4	July 8	July 15
5 years in 10 later than--	May 21	June 22	July 3
First freezing temperature in fall:			
1 year in 10 earlier than--	September 10	August 29	August 7
2 years in 10 earlier than--	September 14	September 2	August 14
5 years in 10 earlier than--	September 21	September 9	August 27

Table 3.—Growing Season

(Recorded in the period 1971 to 2000 at Summer Lake 1 S [8173], Alkali Lake [0118], Silver Lake Ranger Station [7817], and The Poplars [8420], Oregon.)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	*Days*	*Days*
SUMMER LAKE 1 S			
9 years in 10	162	128	91
8 years in 10	172	136	99
5 years in 10	192	153	115
2 years in 10	212	169	131
1 year in 10	222	178	139
ALKALI LAKE			
9 years in 10	122	92	55
8 years in 10	130	101	64
5 years in 10	144	119	80
2 years in 10	158	137	96
1 year in 10	165	146	105
SILVER LAKE RANGER STATION			
9 years in 10	89	57	27
8 years in 10	100	67	37
5 years in 10	121	86	55
2 years in 10	142	106	72
1 year in 10	153	116	82
THE POPLARS			
9 years in 10	92	56	29
8 years in 10	102	64	39
5 years in 10	121	80	57
2 years in 10	141	95	75
1 year in 10	151	103	85

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
200	Abert ashy loamy sand, 0 to 2 percent slopes	45,115	---	45,115	1.7
201	Actem cobbly loam, 2 to 20 percent slopes	1,399	---	1,399	*
202	Alyan gravelly sandy loam, 3 to 15 percent slopes	5,329	---	5,329	0.2
203	Anawalt gravelly clay loam, 0 to 12 percent slopes	15,142	---	15,142	0.6
204	Anawalt very gravelly loam, 2 to 10 percent slopes	5,393	---	5,393	0.2
205	Anawalt-Freznik complex, 1 to 5 percent slopes	30,423	---	30,423	1.1
206	Anawalt-Oreneva complex, 0 to 12 percent slopes	1,625	---	1,625	*
207	Anawalt-Raz complex, 2 to 10 percent slopes	16,788	---	16,788	0.6
208	Anawalt-Rock outcrop complex, 2 to 15 percent slopes	569	---	569	*
209	Atlow-Rock outcrop complex, 20 to 50 percent slopes	1,499	---	1,499	*
210	Baconcamp-Clamp complex, 5 to 20 percent slopes	191	---	191	*
211	Baconcamp-Rock outcrop complex, 3 to 30 percent slopes	173	---	173	*
212	Bluesters gravelly ashy loamy sand, 15 to 50 percent slopes	1,075	---	1,075	*
213	Bluesters gravelly ashy loamy sand, dry, 15 to 50 percent slopes	372	---	372	*
214	Boilout cobbly ashy fine sandy loam, 2 to 10 percent slopes	16,437	---	16,437	0.6
215	Bonnick gravelly ashy loamy sand, 1 to 5 percent slopes	11,220	---	11,220	0.4
216	Bonnick gravelly ashy sandy loam, 0 to 15 percent slopes	1,979	---	1,979	*
217	Bonnick-Fort Rock complex, 0 to 2 percent slopes	9,280	---	9,280	0.3
218	Bonnick-Fort Rock complex, 1 to 8 percent slopes	7,368	---	7,368	0.3
219	Bonnick-Fort Rock complex, low precipitation, 1 to 8 percent slopes	2,310	---	2,310	*
220	Bonnick-Kunceider complex, 1 to 10 percent slopes	1,816	---	1,816	*
221	Bonnick-Morehouse complex, 0 to 10 percent slopes	464	---	464	*
222	Booth very stony loam, 2 to 15 percent slopes	3,033	---	3,033	0.1
223	Booth-Rock outcrop complex, 2 to 15 percent slopes	92	---	92	*
224	Borobey ashy fine sandy loam, 0 to 5 percent slopes	2,413	---	2,413	*
225	Borobey ashy loamy sand, 0 to 5 percent slopes	9,836	---	9,836	0.4
226	Borobey ashy sandy loam, 2 to 15 percent slopes	2,639	---	2,639	*
227	Borobey-Morehouse complex, 0 to 20 percent slopes	576	---	576	*
228	Borobey-Oatmanflat ashy sandy loams, 1 to 5 percent slopes	1,925	---	1,925	*
229	Borobey-Overallflat complex, 0 to 2 percent slopes	3,168	---	3,168	0.1
230	Brabble-Calderwood complex, 5 to 25 percent slopes	4,892	---	4,892	0.2
231	Brace-Foleylake complex, 2 to 15 percent slopes	3,948	---	3,948	0.1
232	Bridgewell ashy loam, 0 to 2 percent slopes	8,637	---	8,637	0.3

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
233	Bridgewell ashy sandy loam, 0 to 2 percent slopes	214	---	214	*
234	Bullump-Rock outcrop-Nuss complex, 20 to 70 percent south slopes	899	---	899	*
236	Bunyard ashy silt loam, 0 to 1 percent slopes	732	---	732	*
237	Cabinspring-Chesebro-Hayespring complex, 20 to 50 percent slopes	6,532	---	6,532	0.2
238	Calderwood-McConnel complex, 0 to 20 percent slopes	20,200	---	20,200	0.7
239	Carryback very cobbly loam, 2 to 15 percent slopes, eroded	18	---	18	*
240	Carryback very stony clay loam, 2 to 20 percent slopes	2,016	---	2,016	*
241	Carryback-Pearlwise complex, 3 to 15 percent slopes	3,297	---	3,297	0.1
242	Carvix silt loam, 0 to 5 percent slopes	3,285	---	3,285	0.1
243	Catlow gravelly sandy loam, 2 to 12 percent slopes	1,861	---	1,861	*
244	Catlow-Davey complex, 2 to 30 percent slopes	1,267	---	1,267	*
245	Catnapp extremely cobbly loam, 2 to 15 percent slopes	986	---	986	*
246	Chancelakes-Silverash complex, 0 to 1 percent slopes	2,379	---	2,379	*
247	Chen-Erakatak-Lambring complex, 15 to 50 percent slopes	11,331	---	11,331	0.4
248	Chesebro-Rock outcrop complex, 20 to 65 percent slopes	556	---	556	*
249	Cinderfall-Fort Rock-Kunceider complex, 1 to 8 percent slopes	1,975	---	1,975	*
250	Cleavage-Ninemile-Westbutte complex, 2 to 15 percent slopes	3,158	---	3,158	0.1
251	Cleet very gravelly sandy loam, 2 to 15 percent slopes	10,992	---	10,992	0.4
252	Clurde loam, 0 to 6 percent slopes	2,030	---	2,030	*
253	Clurde-Toll complex, 0 to 12 percent slopes	3,863	---	3,863	0.1
254	Connleyhills ashy coarse sandy loam, 2 to 15 percent slopes	5,834	---	5,834	0.2
255	Connleyhills cobbly ashy loam, 2 to 20 percent slopes	1,306	---	1,306	*
256	Cooperdraw-Fertaline complex, 1 to 5 percent slopes	8,227	---	8,227	0.3
257	Corral fine sandy loam, low precipitation, 2 to 15 percent slopes	1,096	---	1,096	*
258	Coztur sandy loam, 2 to 15 percent slopes	6,609	---	6,609	0.2
259	Crackedground cobbly ashy loamy sand, 1 to 5 percent slopes	1,582	---	1,582	*
260	Crackedground cobbly ashy loamy sand, 1 to 6 percent slopes	3,474	---	3,474	0.1
261	Crackedground-Kunceider complex, 1 to 5 percent slopes	10,347	---	10,347	0.4
262	Crackedground-Milcan complex, 1 to 5 percent slopes	2,303	---	2,303	*
263	Crackedground-Milcan-Rock outcrop complex, 1 to 5 percent slopes	1,346	---	1,346	*
264	Crackedground-Wegert complex, 1 to 15 percent slopes	6,864	---	6,864	0.3
266	Deppy-Rubble land complex, 30 to 50 percent slopes	18	---	18	*
267	Deppy-Tumtum complex, 5 to 15 percent slopes	2,531	---	2,531	*
268	Derallo-Chesebro association, 15 to 35 percent slopes	656	---	656	*

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
269	Derallo-Rock outcrop complex, 15 to 50 percent slopes	1,390	---	1,390	*
270	Derallo-Rock outcrop complex, 20 to 60 percent south slopes	100	---	100	*
271	Diablopeak-Yankeewell complex, 2 to 20 percent slopes	22,994	---	22,994	0.8
272	Drakesflat loam, 15 to 30 percent slopes	148	---	148	*
273	Drakesflat loam, 2 to 15 percent slopes	1,880	---	1,880	*
274	Dune land, 5 to 50 percent slopes	429	---	429	*
275	Dune land-Fossilake-Salhouse complex, 0 to 30 percent slopes	555	---	555	*
276	Dune land-Morehouse complex, 1 to 10 percent slopes	921	---	921	*
277	Dune land-Salhouse complex, 2 to 35 percent slopes	9,096	---	9,096	0.3
278	Dunres cobbly ashy sandy loam, 1 to 15 percent slopes	13,657	---	13,657	0.5
279	Dunres cobbly ashy sandy loam, thick surface, 1 to 8 percent slopes	7,731	---	7,731	0.3
280	Dunres stony ashy fine sandy loam, 1 to 6 percent slopes	2,155	---	2,155	*
281	Dunres-Henkle complex, 2 to 20 percent slopes	2,566	---	2,566	*
282	Dunres-Moonbeam complex, 1 to 8 percent slopes	2,091	---	2,091	*
283	Dunres-Moonbeam-Nuss complex, 1 to 20 percent slopes	651	---	651	*
284	Dunres-Murlose-Nuss complex, 1 to 20 percent slopes	586	---	586	*
285	Dunres-Moonbeam complex, 2 to 20 percent slopes	757	---	757	*
286	Dunres-Norcross complex, 1 to 8 percent slopes	7,837	---	7,837	0.3
287	Edemaps-Pernty-Rock outcrop complex, 2 to 20 percent slopes	15,570	---	15,570	0.6
288	Embal ashy sandy loam, 0 to 3 percent slopes	1,037	---	1,037	*
289	Embal-Paulina complex, 0 to 2 percent slopes	310	---	310	*
290	Enko sandy loam, 0 to 6 percent slopes	6,711	---	6,711	0.2
291	Enko loam, 1 to 10 percent slopes	4,306	---	4,306	0.2
292	Enko loamy sand, 2 to 8 percent slopes	36,989	---	36,989	1.4
293	Enko-Catlow complex, 7 to 15 percent slopes	1,066	---	1,066	*
294	Enko-McConnel complex, 0 to 5 percent slopes	13,696	---	13,696	0.5
295	Erakatak cobbly clay loam, moist, 5 to 20 percent slopes	487	---	487	*
296	Erakatak-Carryback complex, 15 to 30 percent slopes	86	---	86	*
297	Erakatak-Leevan-Rock outcrop complex, 20 to 50 percent slopes	332	---	332	*
298	Erakatak-Rock outcrop complex, 20 to 60 percent south slopes	3,683	---	3,683	0.1
299	Erakatak-Rubble land complex, 30 to 70 percent slopes	1,710	---	1,710	*
300	Felcher-Camptank-Rock outcrop complex, 15 to 45 percent slopes	1,695	---	1,695	*
301	Felcher-Fitzwater-Rock outcrop complex, 20 to 60 percent slopes	30,936	---	30,936	1.1
302	Felcher-Oreneva-Rock outcrop complex, 20 to 60 percent slopes	1,210	---	1,210	*
303	Felcher-Riddleranch-Rock outcrop complex, 20 to 60 percent slopes	22,566	---	22,566	0.8
304	Felcher-Rock outcrop complex, 15 to 45 percent south slopes	12,700	---	12,700	0.5

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
305	Felcher-Rock outcrop complex, 20 to 65 percent slopes	2,960	---	2,960	0.1
306	Felcher-Rock outcrop complex, 40 to 70 percent slopes	733	---	733	*
307	Felcher-Rock outcrop-Brezniak complex, 30 to 65 percent south slopes	4,618	---	4,618	0.2
308	Felcher-Rock outcrop-Westbutte complex, 20 to 40 percent slopes	1,181	---	1,181	*
309	Firelake-Enko complex, 1 to 20 percent slopes	9,151	---	9,151	0.3
310	Fitzwater extremely stony loam, 30 to 50 percent south slopes	309	---	309	*
311	Fitzwater-Rock outcrop complex, 20 to 60 percent north slopes	1,039	---	1,039	*
312	Flagstaff loamy sand, 1 to 8 percent slopes	2,683	---	2,683	*
313	Flagstaff complex, 0 to 1 percent slopes	17,900	---	17,900	0.7
314	Flagstaff-Playas complex, 0 to 1 percent slopes	7,253	---	7,253	0.3
315	Flagstaff-Salhouse complex, 0 to 20 percent slopes	17,496	---	17,496	0.6
316	Foleylake-Anawalt complex, 1 to 5 percent slopes	2,570	---	2,570	*
317	Fort Rock ashy sandy loam, 0 to 2 percent slopes	4,097	---	4,097	0.2
318	Fort Rock gravelly ashy sandy loam, 1 to 8 percent slopes	2,021	---	2,021	*
319	Fort Rock-Bonnick complex, 0 to 2 percent slopes	3,018	---	3,018	0.1
320	Fort Rock-Lapham complex, 0 to 2 percent slopes	5,515	---	5,515	0.2
321	Fort Rock-Lapham complex, warm, 0 to 10 percent slopes	962	---	962	*
322	Fort Rock-Morehouse complex, 0 to 2 percent slopes	1,659	---	1,659	*
323	Fort Rock-Morehouse complex, 1 to 5 percent slopes	12,768	---	12,768	0.5
324	Fort Rock-Morehouse complex, moist, 0 to 8 percent slopes	2,609	---	2,609	*
325	Fort Rock-Suckerflat complex, 0 to 8 percent slopes	8,335	---	8,335	0.3
326	Fossilake ashy fine sandy loam, 0 to 1 percent slopes	150	---	150	*
327	Fossilake-Salhouse complex, cool, 0 to 20 percent slopes	1,236	---	1,236	*
328	Giranch-Meld complex, 2 to 15 percent slopes	2,558	---	2,558	*
329	Glencabin gravelly ashy loam, 15 to 30 percent south slopes	1,544	---	1,544	*
330	Glencabin gravelly ashy loam, 30 to 65 percent north slopes	425	---	425	*
331	Glencabin gravelly ashy loam, 30 to 65 percent south slopes	1,628	---	1,628	*
332	Glencabin complex, dry, 15 to 35 percent slopes	10,476	---	10,476	0.4
333	Glencabin-Rock outcrop complex, 15 to 65 percent slopes	468	---	468	*
334	Glencabin-Rock outcrop complex, moist, 15 to 40 percent slopes	816	---	816	*
335	Glencabin-Wanoga complex, 15 to 35 percent slopes	1,034	---	1,034	*
336	Glencabin-Yapoah-Rock outcrop complex, 15 to 50 percent slopes	863	---	863	*

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
338	Goodtack ashy very fine sandy loam, 2 to 10 percent slopes	51,793	---	51,793	1.9
339	Goodtack ashy very fine sandy loam, low precipitation, 1 to 5 percent slopes	14,594	---	14,594	0.5
340	Goodtack-Borobey complex, 0 to 10 percent slopes	6,010	---	6,010	0.2
341	Goodtack-Borobey complex, 1 to 5 percent slopes	2,058	---	2,058	*
342	Goodtack-Morehouse complex, 1 to 15 percent slopes	1,417	---	1,417	*
343	Goodtack-Sliptrack complex, 1 to 8 percent slopes	549	---	549	*
344	Gradon gravelly fine sandy loam, 0 to 8 percent slopes	12,482	---	12,482	0.5
345	Greenmountain gravelly ashy sandy loam, 1 to 8 percent slopes	1,888	---	1,888	*
346	Greenmountain-Jacksplace complex, 2 to 15 percent slopes	19,747	---	19,747	0.7
347	Greenmountain-Lastcall complex, 1 to 15 percent slopes	347	---	347	*
348	Greenmountain-Weglike complex, 2 to 10 percent slopes	6,394	---	6,394	0.2
349	Hackwood-Westbutte complex, 15 to 35 percent slopes	159	---	159	*
350	Hager complex, 2 to 15 percent slopes	1,761	---	1,761	*
351	Hayespring ashy loamy fine sand, 1 to 5 percent slopes	2,387	---	2,387	*
352	Hayespring-Dunres complex, 1 to 8 percent slopes	1,974	---	1,974	*
353	Hayespring-Moonbeam complex, 1 to 6 percent slopes	3,350	---	3,350	0.1
354	Hayespring-Moonbeam complex, 2 to 20 percent slopes	1,572	---	1,572	*
355	Hayespring-Moonbeam complex, cobbly, 2 to 15 percent slopes	5,709	---	5,709	0.2
356	Hayespring-Moonbeam complex, low precipitation, 1 to 8 percent slopes	404	---	404	*
357	Hayespring-Senra complex, 1 to 6 percent slopes	2,328	---	2,328	*
358	Helphenstein silt loam, 0 to 2 percent slopes	419	---	419	*
359	Helphenstein silt loam, frequently ponded, 0 to 2 percent slopes	1,346	---	1,346	*
360	Helphenstein very channery loam, 0 to 4 percent slopes	2,451	---	2,451	*
361	Helphenstein-Kewake complex, 0 to 45 percent slopes	2,076	---	2,076	*
362	Helphenstein-Legler-Playas complex, 0 to 5 percent slopes	1,609	---	1,609	*
363	Helphenstein-Pitcheranch-Reese complex, 0 to 2 percent slopes	4,601	---	4,601	0.2
364	Helphenstein-Turpin-Kewake complex, 0 to 15 percent slopes	1,376	---	1,376	*
365	Henkle-Ludi complex, 20 to 40 percent slopes	153	---	153	*
366	Henkle-Wanoga complex, 1 to 15 percent slopes	10,502	---	10,502	0.4
367	Henkle-Wanoga complex, dry, 10 to 30 percent slopes	68	---	68	*
368	Horning ashy loamy sand, 2 to 20 percent slopes	2,737	---	2,737	0.1
369	Horning-Tonor complex, 0 to 3 percent slopes	4,654	---	4,654	0.2
370	Icene-Playas complex, 0 to 1 percent slopes	5,083	---	5,083	0.2

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
371	Ipsoot very paragravelly ashy loamy coarse sand, 15 to 65 percent slopes	583	361	944	*
372	Ipsoot very paragravelly ashy loamy coarse sand, 30 to 65 percent north slopes	901	25	926	*
373	Ipsoot very paragravelly ashy loamy coarse sand, 30 to 65 percent south slopes	1,281	51	1,332	*
374	Jacksplace ashy fine sandy loam, moist, 2 to 15 percent slopes	1,486	---	1,486	*
375	Jacksplace ashy loamy sand, 1 to 6 percent slopes	602	---	602	*
376	Jacksplace cobbly ashy very fine sandy loam, 2 to 15 percent slopes	6,989	---	6,989	0.3
377	Jacksplace stony ashy loamy fine sand, 2 to 15 percent slopes	2,240	---	2,240	*
378	Jacksplace-Derallo-Glencabin complex, 5 to 60 percent slopes	5,759	---	5,759	0.2
379	Jacksplace-Senra complex, 5 to 15 percent slopes	165	---	165	*
380	Kewake loamy sand, 2 to 45 percent slopes	3,120	---	3,120	0.1
382	Kewake-Helphenstein complex, 0 to 25 percent slopes	2,939	---	2,939	0.1
383	Kewake-Helphenstein, dry, complex, 0 to 25 percent slopes	9,609	---	9,609	0.4
384	Kewake-Icene complex, 0 to 15 percent slopes	184	---	184	*
385	Kewake-Ozamis-Reese complex, 0 to 15 percent slopes	436	---	436	*
386	Kewake-Turpin complex, 0 to 45 percent slopes	4,149	---	4,149	0.2
387	Kewake-Turpin complex, sodic, 0 to 45 percent slopes	6,324	---	6,324	0.2
388	Krackle complex, 20 to 40 percent slopes	11	---	11	*
389	Kunceider cobbly ashy loamy sand, 0 to 15 percent slopes	6,322	---	6,322	0.2
390	Kunceider-Fort Rock complex, 1 to 5 percent slopes	3,359	---	3,359	0.1
391	Kunceider-Rock outcrop complex, 0 to 15 percent slopes	611	---	611	*
392	Kunceider-Wegert complex, 1 to 15 percent slopes	17,837	---	17,837	0.7
393	Laidlaw ashy loamy coarse sand, 5 to 15 percent slopes	861	---	861	*
394	Laidlaw ashy loamy sand, 15 to 40 percent slopes	81	---	81	*
395	Laidlaw-Wanoga complex, dry, 0 to 3 percent slopes	6,113	---	6,113	0.2
397	Lapham gravelly ashy loamy sand, 0 to 8 percent slopes	6,914	---	6,914	0.3
398	Lapine paragravelly ashy loamy coarse sand, 15 to 30 percent north slopes	---	119	119	*
399	Lapine paragravelly ashy loamy coarse sand, 0 to 15 percent slopes	---	934	934	*
400	Lapine paragravelly ashy loamy coarse sand, low landscape position, 0 to 3 percent slopes	---	2,001	2,001	*
401	Lastcall ashy sandy loam, 1 to 8 percent slopes	5,717	---	5,717	0.2
402	Lastcall complex, 1 to 10 percent slopes	3,643	---	3,643	0.1
403	Lastcall-Hayespring complex, 0 to 8 percent slopes	772	---	772	*
404	Lastcall-Hayespring complex, 1 to 5 percent slopes	3,599	---	3,599	0.1

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total Area	Total Extent
		Acres	*Acres*	*Acres*	*Pct*
405	Lastcall-Jacksplace-Embal complex, 1 to 5 percent slopes	3,247	---	3,247	0.1
407	Lastcall-Moonbeam complex, 1 to 10 percent slopes	13,814	---	13,814	0.5
408	Leevan-Fitzwater-Chen complex, 20 to 60 percent slopes	657	---	657	*
409	Leevan-Lambring-Rock outcrop complex, 20 to 60 percent slopes	865	---	865	*
410	Legler clay loam, 0 to 2 percent slopes	882	---	882	*
411	Bridgewell-Legler complex, 0 to 3 percent slopes	1,623	---	1,623	*
412	Bridgewell-Chancelakes association, 0 to 2 percent slopes	623	---	623	*
413	Lithic Haploxerolls-Lava flows complex, cool, 2 to 15 percent slopes	15,131	---	15,131	0.6
414	Lithic Haploxerolls-Lava flows complex, dry, 2 to 15 percent slopes	4,992	---	4,992	0.2
415	Locane cobbly clay loam, 2 to 8 percent slopes	303	---	303	*
416	Locane-Anawalt complex, 2 to 15 percent slopes	2,105	---	2,105	*
417	Locane-Deseed complex, 2 to 20 percent slopes	5,930	---	5,930	0.2
418	Locolake extremely cobbly sandy loam, 2 to 15 percent slopes	10,630	---	10,630	0.4
419	Locolake-McConnel complex, 3 to 10 percent slopes	2,149	---	2,149	*
420	Lostforest-Sandrock-Morehouse complex, 0 to 10 percent slopes	5,491	---	5,491	0.2
422	Ludi gravelly ashy fine sandy loam, 15 to 35 percent south slopes	381	---	381	*
423	Ludi gravelly ashy sandy loam, low precipitation, 15 to 30 percent north slopes	744	---	744	*
424	Ludi gravelly ashy sandy loam, low precipitation, 15 to 30 percent south slopes	1,111	---	1,111	*
425	Ludi gravelly ashy sandy loam, low precipitation, 15 to 50 percent north slopes	344	---	344	*
426	Ludi gravelly ashy loam, low precipitation, 30 to 50 percent south slopes	1,606	---	1,606	*
427	Ludi very gravelly ashy sandy loam, 15 to 35 percent slopes	431	---	431	*
428	Ludi-Glassbutte-Ludi, north complex, 15 to 50 percent slopes	356	---	356	*
429	Ludi-Glassbutte complex, 15 to 50 percent slopes	576	---	576	*
430	Lyeflat ashy coarse sand, 1 to 5 percent slopes	1,501	---	1,501	*
431	Lyeflat very gravelly very fine sandy loam, 20 to 50 percent slopes	2,143	---	2,143	*
432	Lyeflat-Lyeflat, very cobbly-Rock outcrop complex, 2 to 50 percent slopes	1,202	---	1,202	*
433	Lyeflat-Rock outcrop complex, 2 to 20 percent slopes	7,093	---	7,093	0.3
434	McConnel cobbly sandy loam, 3 to 8 percent slopes	486	---	486	*
435	McConnel gravelly sandy loam, sodic substratum, 0 to 5 percent slopes	4,336	---	4,336	0.2
436	McConnel very gravelly sandy loam, 0 to 2 percent slopes	3,550	---	3,550	0.1
437	McConnel very gravelly sandy loam, 2 to 15 percent slopes	1,875	---	1,875	*

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
438	McConnel-Davey complex, 15 to 45 percent slopes	1,060	---	1,060	*
439	McConnel-Poorjug complex, 1 to 15 percent slopes	7,917	---	7,917	0.3
440	McConnel-Turpin complex, 2 to 15 percent slopes	1,351	---	1,351	*
441	McNye-Wildhill-Rock outcrop complex, 20 to 50 percent slopes	5,657	---	5,657	0.2
442	Meld-Giranch complex, 2 to 20 percent slopes	716	---	716	*
443	Menbo stony loam, dry, 5 to 25 percent slopes	65	---	65	*
444	Merlin extremely stony loam, 0 to 15 percent slopes	276	---	276	*
445	Mesman fine sandy loam, 0 to 5 percent slopes	4,490	---	4,490	0.2
446	Mesman fine sandy loam, slightly alkaline, 0 to 5 percent slopes	2,408	---	2,408	*
447	Mesman-McConnel-Kewake complex, 2 to 8 percent slopes	2,260	---	2,260	*
448	Milcan ashy loamy sand, 1 to 5 percent slopes	2,257	---	2,257	*
449	Milcan-Jacksplace-Rock outcrop complex, 1 to 15 percent slopes	1,669	---	1,669	*
450	Millenium ashy silt loam, 0 to 2 percent slopes	675	---	675	*
451	Millenium ashy silt loam, basin floor, 0 to 2 percent slopes	880	---	880	*
452	Millenium-Stauffer-Raztack complex, 0 to 2 percent slopes	1,183	---	1,183	*
455	Moonbeam cobbly ashy fine sandy loam, 1 to 5 percent slopes	6,242	---	6,242	0.2
456	Moonbeam cobbly ashy loam, 2 to 15 percent slopes	9,212	---	9,212	0.3
457	Moonbeam extremely cobbly ashy loam, 1 to 8 percent slopes	7,904	---	7,904	0.3
458	Moonbeam very gravelly ashy loam, 1 to 12 percent slopes	31,973	---	31,973	1.2
459	Moonbeam very cobbly ashy loam, 1 to 8 percent slopes	6,438	---	6,438	0.2
460	Moonbeam very cobbly ashy loam, 0 to 15 percent slopes	1,924	---	1,924	*
461	Moonbeam-Connleyhills complex, 1 to 8 percent slopes	5,623	---	5,623	0.2
462	Moonbeam-Goodtack complex, 1 to 10 percent slopes	32,206	---	32,206	1.2
463	Moonbeam-Goodtack complex, 1 to 8 percent slopes	7,863	---	7,863	0.3
464	Moonbeam-Hayespring complex, 2 to 8 percent slopes	4,924	---	4,924	0.2
465	Moonbeam-Hayespring complex, moist, 2 to 12 percent slopes	1,635	---	1,635	*
466	Moonbeam-Meld complex, 2 to 8 percent slopes	3,845	---	3,845	0.1
467	Moonbeam-Senra complex, 2 to 20 percent slopes	848	---	848	*
468	Moonbeam-Senra complex, gravelly, 1 to 5 percent slopes	24,691	---	24,691	0.9
469	Moonbeam-Senra-Hayespring complex, 1 to 8 percent slopes	690	---	690	*
470	Morehouse ashy loamy fine sand, 0 to 2 percent slopes	42,898	---	42,898	1.6
471	Morehouse ashy loamy fine sand, 1 to 15 percent slopes	2,638	---	2,638	*
472	Morehouse ashy loamy fine sand, 2 to 20 percent slopes	13,559	---	13,559	0.5

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
473	Morehouse ashy loamy fine sand, high precipitation, 15 to 35 percent slopes	472	---	472	*
474	Morehouse complex, 1 to 20 percent slopes	1,027	---	1,027	*
475	Morehouse-Playas complex, 0 to 2 percent slopes	775	---	775	*
476	Morfitt loam, 0 to 2 percent slopes	5,773	---	5,773	0.2
477	Murlose cobbly ashy loam, 2 to 20 percent slopes	1,848	---	1,848	*
478	Murlose gravelly ashy coarse sandy loam, 1 to 6 percent slopes	2,468	---	2,468	*
479	Ninemile very cobbly loam, 2 to 15 percent slopes	6,580	---	6,580	0.2
480	Ninemile very cobbly loam, low precipitation, 2 to 15 percent slopes	36,976	---	36,976	1.4
481	Ninemile-Arcia complex, 2 to 15 percent slopes	3,916	---	3,916	0.1
482	Ninemile-Carvix complex, 0 to 8 percent slopes	362	---	362	*
483	Ninemile-Edemaps complex, 2 to 10 percent slopes	3,884	---	3,884	0.1
484	Ninemile-Reluctan complex, 0 to 15 percent slopes	11,647	---	11,647	0.4
485	Ninemile-Reluctan-Rubble land complex, 2 to 30 percent slopes	1,046	---	1,046	*
486	Ninemile-Rock outcrop-Felcher complex, 15 to 35 percent slopes	2,072	---	2,072	*
487	Ninemile-Westbutte complex, 2 to 15 percent slopes	1,633	---	1,633	*
488	Ninemile-Westbutte-Ninemile extremely stony complex, 2 to 30 percent slopes	745	---	745	*
489	Noidee very stony fine sandy loam, 2 to 15 percent slopes	10,765	---	10,765	0.4
490	Norcross complex, 1 to 4 percent slopes	4,369	---	4,369	0.2
491	Norcross extremely cobbly ashy loam, 1 to 8 percent slopes	3,499	---	3,499	0.1
492	Norcross gravelly ashy loam, 1 to 15 percent slopes	669	---	669	*
493	Oatmanflat ashy very fine sandy loam, 0 to 2 percent slopes	2,521	---	2,521	*
494	Oatmanflat-Borobey ashy very fine sandy loams, 0 to 2 percent slopes	556	---	556	*
495	Old Camp very cobbly loam, 2 to 15 percent slopes	2,304	---	2,304	*
496	Old Camp very cobbly loam, 30 to 50 percent south slopes	185	---	185	*
497	Old Camp-Felcher-Rock outcrop complex, 15 to 50 percent slopes	5,210	---	5,210	0.2
498	Osoll-Panlee-Rock outcrop complex, 20 to 50 percent slopes	7,048	---	7,048	0.3
499	Overallflat ashy very fine sandy loam, 0 to 2 percent slopes	524	---	524	*
500	Overallflat ashy very fine sandy loam, pluvial lake, 0 to 2 percent slopes	1,468	---	1,468	*
501	Overallflat-Morehouse complex, 0 to 5 percent slopes	1,872	---	1,872	*
502	Overallflat-Silverash complex, 0 to 1 percent slopes	3,148	---	3,148	0.1
503	Overallflat, hummocky-Silverash complex, 0 to 2 percent slopes	1,097	---	1,097	*
504	Ozamis silty clay, saline, 0 to 1 percent slopes	12	---	12	*

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
505	Ozamis-Reese complex, 0 to 1 percent slopes	50	---	50	*
506	Pait very cobbly loam, 5 to 30 percent slopes	544	---	544	*
507	Paulina ashy silty clay loam, 0 to 1 percent slopes	2,804	---	2,804	0.1
508	Paulina ashy silty clay loam, very gravelly substratum, 0 to 1 percent slopes	153	---	153	*
509	Paulina-Chinarise complex, 0 to 4 percent slopes	14,035	---	14,035	0.5
511	Pernty gravelly silt loam, 3 to 15 percent slopes	7,505	---	7,505	0.3
512	Pernty-Chesebro-Rock outcrop complex, 15 to 30 percent slopes	1,136	---	1,136	*
513	Pernty-Cleavage complex, 5 to 15 percent slopes	3,703	---	3,703	0.1
514	Pernty-Glencabin-Rock outcrop complex, 15 to 45 percent slopes	1,275	---	1,275	*
516	Pernty-Westbutte-Ninemile association, 5 to 50 percent slopes	1,059	---	1,059	*
517	Picturerock ashy loam, 1 to 3 percent slopes	1,668	---	1,668	*
518	Pitcheranch silt loam, 0 to 1 percent slopes	206	---	206	*
519	Pitcheranch-Chinarise complex, 0 to 4 percent slopes	2,888	---	2,888	0.1
520	Playas	2,413	---	2,413	*
521	Playas, saline	17,322	---	17,322	0.6
522	Playas-Helphenstein complex, 0 to 2 percent slopes	2,298	---	2,298	*
523	Poorjug complex, 0 to 10 percent slopes	6,100	---	6,100	0.2
524	Poorjug-Rock outcrop complex, 2 to 15 percent slopes	1,224	---	1,224	*
525	Porterfield-Rock outcrop complex, 2 to 20 percent slopes	1,018	---	1,018	*
526	Puzzlebark-Morehouse-Morehouse, gently sloping complex, 2 to 25 percent slopes	717	---	717	*
527	Puzzlebark-Sandrock complex, 0 to 5 percent slopes	647	---	647	*
528	Rabbithills complex, 0 to 10 percent slopes	1,818	---	1,818	*
529	Rabbithills complex, basin, 0 to 10 percent slopes	12,592	---	12,592	0.5
530	Rabbithills gravelly loamy sand, 0 to 5 percent slopes	29,336	---	29,336	1.1
531	Rabbithills gravelly sandy loam, sodic, 0 to 6 percent slopes	1,522	---	1,522	*
532	Rabbithills gravelly loam, 2 to 20 percent slopes	4,045	---	4,045	0.1
533	Rabbithills very gravelly loamy sand, 2 to 15 percent slopes	11,644	---	11,644	0.4
534	Rabbithills-Helphenstein complex, 0 to 10 percent slopes	1,007	---	1,007	*
535	Ratto very cobbly loam, 2 to 15 percent slopes	466	---	466	*
536	Raz cobbly fine sandy loam, overblown, 1 to 10 percent slopes	3,207	---	3,207	0.1
537	Raz-Brace complex, 2 to 10 percent slopes	7,023	---	7,023	0.3
538	Raz-Brace complex, high precipitation, 2 to 20 percent slopes	187,925	---	187,925	6.9
539	Raz-Brace complex, low precipitation, 2 to 20 percent slopes	131,063	---	131,063	4.8
540	Raz-Brace complex, overblown, 2 to 20 percent slopes	2,690	---	2,690	*
541	Raz-Poorjug complex, 2 to 15 percent slopes	7,398	---	7,398	0.3

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total Area	Total Extent
		Acres	*Acres*	*Acres*	*Pct*
542	Raz-Reallis association, 1 to 4 percent slopes	789	---	789	*
543	Raztack-Silverash-Embal complex, 0 to 1 percent slopes	358	---	358	*
544	Reallis fine sandy loam, 0 to 3 percent slopes	57	---	57	*
545	Reallis loamy sand, 0 to 2 percent slopes	2,745	---	2,745	0.1
546	Reallis complex, 0 to 4 percent slopes	2,409	---	2,409	*
547	Reallis-Yankeewell complex, 2 to 8 percent slopes	1,287	---	1,287	*
548	Redcanyon-Rock outcrop complex, 30 to 50 percent north slopes	9	---	9	*
549	Redcanyon-Rock outcrop complex, 30 to 50 percent south slopes	12	---	12	*
550	Redcliff-Rock outcrop complex, 30 to 65 percent south slopes	50	---	50	*
551	Reese-Ozamis complex, 0 to 1 percent slopes	108	---	108	*
552	Reluctan loam, 2 to 20 percent slopes	4,976	---	4,976	0.2
553	Reluctan-Arness complex, 2 to 20 percent slopes	6,523	---	6,523	0.2
554	Riddleranch stony loam, 15 to 40 percent north slopes	62	---	62	*
555	Riddleranch very gravelly loam, 30 to 50 percent north slopes	414	---	414	*
556	Riddleranch-Lambring-Rock outcrop complex, 20 to 50 percent slopes	3,989	---	3,989	0.1
557	Rinconflat stony loam, 3 to 10 percent slopes	2,968	---	2,968	0.1
558	Rock outcrop and Rubble land, 20 to 60 percent slopes	3,400	---	3,400	0.1
559	Rock outcrop-Blackhills complex, 15 to 35 percent slopes	900	---	900	*
560	Rock outcrop-Blackhills-Glencabin complex, 15 to 55 percent slopes	1,159	---	1,159	*
561	Rock outcrop-Felcher association, 30 to 70 percent south slopes	1,565	---	1,565	*
562	Rock outcrop-Shukash complex, 15 to 50 percent slopes	1,382	---	1,382	*
563	Rock outcrop-Xeric Haplocambids complex, 20 to 60 percent slopes	1,289	---	1,289	*
564	Rock outcrop-Xeric Haplocambids-Rubble land complex, 50 to 90 percent slopes	10,345	---	10,345	0.4
565	Rock outcrop-Xerolls complex, 20 to 60 percent south slopes	59	---	59	*
566	Royst very cobbly loam, 2 to 15 percent slopes	3,153	---	3,153	0.1
567	Royst-Ninemile complex, 2 to 8 percent slopes	1,160	---	1,160	*
568	Royst-Nuss complex, 2 to 30 percent slopes	363	---	363	*
569	Sagehen very gravelly loam, 0 to 5 percent slopes	1,282	---	1,282	*
570	Sagehen-Raz complex, 2 to 20 percent slopes	6,628	---	6,628	0.2
571	Salhouse ashy loamy fine sand, 3 to 15 percent slopes	656	---	656	*
572	Salhouse ashy loamy fine sand, strongly alkaline, 2 to 20 percent slopes	4,342	---	4,342	0.2
573	Salhouse-Tonor complex, 0 to 15 percent slopes	1,073	---	1,073	*
574	Seharney very stony sandy loam, 10 to 20 percent slopes	5,897	---	5,897	0.2
575	Seharney-Rabbithills-Enko complex, 1 to 20 percent slopes	3,797	---	3,797	0.1

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
576	Senra ashy fine sandy loam, 0 to 5 percent slopes	8,111	---	8,111	0.3
577	Senra ashy fine sandy loam, 1 to 12 percent slopes	10,893	---	10,893	0.4
578	Senra-Borobey complex, 0 to 2 percent slopes	292	---	292	*
579	Senra-Dunres complex, 1 to 8 percent slopes	6,014	---	6,014	0.2
580	Senra-Goodtack complex, 2 to 10 percent slopes	2,247	---	2,247	*
581	Senra-Goodtack complex, 2 to 20 percent slopes	12,311	---	12,311	0.5
582	Senra-Goodtack-Suckerflat complex, 1 to 4 percent slopes	444	---	444	*
583	Senra-Hayespring complex, 1 to 8 percent slopes	5,109	---	5,109	0.2
584	Senra-Hayespring complex, droughty, 2 to 10 percent slopes	1,331	---	1,331	*
585	Senra-Moonbeam complex, 2 to 15 percent slopes	5,216	---	5,216	0.2
586	Shanahan paragravelly ashy loamy coarse sand, cool, 0 to 1 percent slopes	1,057	---	1,057	*
587	Shanahan paragravelly ashy loamy coarse sand, low landscape position, 0 to 1 percent slopes	221	533	754	*
588	Shanahan-Shukash complex, 0 to 3 percent slopes	14,220	168	14,388	0.5
589	Shukash paragravelly ashy loamy coarse sand, 0 to 8 percent slopes	2,039	1,458	3,497	0.1
590	Shukash paragravelly ashy loamy coarse sand, cool, 0 to 3 percent slopes	13,857	1,580	15,437	0.6
591	Shukash-Rock outcrop complex, 15 to 65 percent north slopes	1,174	---	1,174	*
592	Shukash-Rock outcrop complex, 15 to 65 percent south slopes	2,431	---	2,431	*
593	Shukash-Rock outcrop complex, 3 to 15 percent slopes	4,138	180	4,318	0.2
594	Shukash-Rock outcrop complex, cold, 3 to 15 percent slopes	2,901	---	2,901	0.1
595	Shukash-Rock outcrop complex, high elevation, 3 to 15 percent slopes	10,278	---	10,278	0.4
596	Shukash-Shanahan complex, 0 to 3 percent slopes	1,732	---	1,732	*
597	Shukash-Wanoga-Rock outcrop complex, 0 to 15 percent slopes	14,920	---	14,920	0.5
598	Sisters-Wanoga complex, 0 to 3 percent slopes	3,182	---	3,182	0.1
599	Sliptrack-Moonbeam complex, 1 to 6 percent slopes	3,192	---	3,192	0.1
600	Sliptrack-Oatmanflat complex, 0 to 4 percent slopes	2,262	---	2,262	*
601	Snakepit loamy sand, 0 to 3 percent slopes	3,063	---	3,063	0.1
602	Southcat gravelly loamy sand, 0 to 10 percent slopes	8,151	---	8,151	0.3
603	Southcat-Kewake complex, 1 to 15 percent slopes	5,073	---	5,073	0.2
604	Southcat-Playas complex, 0 to 5 percent slopes	2,055	---	2,055	*
605	Spiderhole complex, 2 to 15 percent slopes	7,324	---	7,324	0.3
606	Stampede gravelly fine sandy loam, 1 to 5 percent slopes	2,265	---	2,265	*
607	Steiger ashy loamy coarse sand, 0 to 3 percent slopes	2,942	1,154	4,096	0.2

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
608	Steiger ashy loamy coarse sand, cool, 0 to 3 percent slopes	5,042	5,961	11,003	0.4
609	Steiger ashy loamy coarse sand, 3 to 15 percent slopes	2,479	590	3,069	0.1
610	Steiger-Rock outcrop complex, 30 to 65 percent north slopes	122	---	122	*
611	Steiger-Rock outcrop complex, 30 to 65 percent south slopes	66	203	269	*
612	Suckerflat ashy loamy fine sand, 2 to 15 percent slopes	1,582	---	1,582	*
613	Suckerflat ashy loamy sand, 0 to 8 percent slopes	19,334	---	19,334	0.7
614	Suckerflat cobbly ashy loam, 2 to 10 percent slopes	7,570	---	7,570	0.3
615	Suckerflat-Rock outcrop complex, 15 to 40 percent north slopes	611	---	611	*
616	Suckerflat-Rock outcrop complex, 15 to 40 percent south slopes	453	---	453	*
617	Suckerflat-Rock outcrop complex, 8 to 15 percent slopes	3,200	---	3,200	0.1
618	Suckerflat-Weglike complex, 2 to 6 percent slopes	8,796	---	8,796	0.3
619	Silverash ashy fine sandy loam, 0 to 1 percent slopes	5,813	---	5,813	0.2
620	Swalesilver loam, 0 to 1 percent slopes	1,895	---	1,895	*
621	Swalesilver silt loam, 0 to 2 percent slopes	326	---	326	*
622	Teguro cobbly loam, 2 to 20 percent slopes	2,139	---	2,139	*
623	Teguro gravelly loam, 5 to 20 percent slopes	6,355	---	6,355	0.2
624	Thompsoncabin, extremely bouldery-Thompsoncabin-Rock outcrop complex, 15 to 70 percent slopes	3,031	---	3,031	0.1
625	Thompsoncabin-Wildhill complex, 20 to 60 percent slopes	2,635	---	2,635	*
626	Thornlake ashy sandy loam, 0 to 2 percent slopes	922	---	922	*
627	Thornlake ashy sandy loam, nonsodic surface, 0 to 2 percent slopes	1,161	---	1,161	*
628	Thornlake complex, 0 to 2 percent slopes	43,353	---	43,353	1.6
629	Thornlake-Catlow-Kewake complex, 1 to 45 percent slopes	1,351	---	1,351	*
630	Thornlake-Kewake complex, 2 to 15 percent slopes	1,991	---	1,991	*
631	Thornlake-Morehouse complex, 0 to 15 percent slopes	954	---	954	*
632	Thornlake-Salhouse complex, 0 to 5 percent slopes	441	---	441	*
633	Thornlake-Salhouse complex, dunes, 0 to 20 percent slopes	3,359	---	3,359	0.1
634	Thornlake-Salhouse-Fossilake complex, 0 to 15 percent slopes	1,008	---	1,008	*
635	Teguro-Carryback complex, 5 to 20 percent slopes	7,914	---	7,914	0.3
636	Toll gravelly loamy sand, 2 to 20 percent slopes	570	---	570	*
637	Toll-Nevador complex, 0 to 15 percent slopes	21	---	21	*
638	Tonor ashy silt loam, 0 to 1 percent slopes	21,201	---	21,201	0.8
639	Tuffcabin ashy sandy loam, 1 to 10 percent slopes	428	---	428	*
640	Turpin fine sandy loam, 0 to 2 percent slopes	10,507	---	10,507	0.4
641	Turpin very fine sandy loam, 0 to 3 percent slopes	10,387	---	10,387	0.4

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
642	Turpin-Boravall-Playas complex, 0 to 5 percent slopes	5,260	---	5,260	0.2
643	Turpin-Kewake-Playas complex, 0 to 15 percent slopes	3,909	---	3,909	0.1
644	Turpin-Playas complex, 0 to 3 percent slopes	3,260	---	3,260	0.1
645	Turpin-Playas complex, saline, 0 to 3 percent slopes	1,029	---	1,029	*
646	Turpin-Playas complex, sodic, 0 to 3 percent slopes	3,299	---	3,299	0.1
647	Turpin-Rabbitcreek complex, 0 to 3 percent slopes	3,008	---	3,008	0.1
648	Turpin-Reese complex, 0 to 8 percent slopes	7,071	---	7,071	0.3
649	Turpin-Turpin, overblown, complex, 0 to 15 percent slopes	9,896	---	9,896	0.4
650	Vitale very cobbly sandy loam, 5 to 20 percent slopes	8,072	---	8,072	0.3
651	Wagontire gravelly clay loam, 2 to 20 percent slopes	72	---	72	*
652	Wanoga gravelly ashy loamy sand, 15 to 30 percent south slopes	551	---	551	*
653	Wanoga gravelly ashy loamy sand, 30 to 65 percent south slopes	1,248	---	1,248	*
654	Wanoga-Henkle complex, 0 to 15 percent slopes	32,333	1	32,334	1.2
655	Wanoga-Henkle complex, cool, 0 to 15 percent slopes	3,028	---	3,028	0.1
656	Wanoga-Henkle complex, dry, 0 to 15 percent slopes	26,930	---	26,930	1.0
657	Wanoga-Henkle complex, moist, 1 to 15 percent slopes	1,855	---	1,855	*
658	Wanoga-Henkle-Rock outcrop complex, 15 to 30 percent slopes	3,446	---	3,446	0.1
659	Wanoga-Henkle-Rock outcrop complex, 30 to 65 percent north slopes	1,004	---	1,004	*
660	Wanoga-Laidlaw gravelly ashy loamy sands, 0 to 3 percent slopes	13,166	---	13,166	0.5
661	Wanoga-Sisters complex, 3 to 15 percent slopes	507	---	507	*
663	Wegert ashy loamy fine sand, 0 to 15 percent slopes	3,041	---	3,041	0.1
664	Wegert ashy loamy sand, cool, 0 to 1 percent slopes	15,464	---	15,464	0.6
665	Wegert very cobbly ashy loamy fine sand, 0 to 15 percent slopes	2,844	---	2,844	0.1
666	Wegert-Kunceider complex, 0 to 3 percent slopes	7,079	---	7,079	0.3
667	Wegert-Kunceider complex, cool, 0 to 15 percent slopes	25,309	---	25,309	0.9
668	Wegert-Kunceider complex, high precipitation, 0 to 15 percent slopes	15,892	---	15,892	0.6
669	Wegert-Morehouse complex, 2 to 10 percent slopes	204	---	204	*
670	Weglike-Jacksplace complex, 1 to 6 percent slopes	4,577	---	4,577	0.2
671	Weglike-Suckerflat complex, 0 to 3 percent slopes	25,008	---	25,008	0.9
672	Westbutte-Lambring-Rock outcrop complex, 35 to 65 percent north slopes	1,448	---	1,448	*
673	Westbutte-Rock outcrop-Pernty association, 20 to 40 percent slopes	1,378	---	1,378	*
674	Widowspring silt loam, 0 to 2 percent slopes	115	---	115	*

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Lake County	Klamath County	Total	
				Area	Extent
		Acres	*Acres*	*Acres*	*Pct*
675	Wildcatbutte-Chesebro-Glassbutte complex, 20 to 65 percent slopes	7,166	---	7,166	0.3
676	Wildcatbutte-Glencabin-Rock outcrop complex, 15 to 35 percent slopes	1,008	---	1,008	*
677	Wildcatbutte-Rock outcrop complex, 15 to 30 percent south slopes	560	---	560	*
678	Wildcatbutte-Rock outcrop complex, 20 to 50 percent slopes	390	---	390	*
679	Wildcatbutte-Suckerflat-Rock outcrop complex, 15 to 40 percent slopes	552	---	552	*
680	Winterim very gravelly loam, slump, 2 to 30 percent slopes	310	---	310	*
681	Wiskan-Rock outcrop complex, 15 to 45 percent slopes	498	---	498	*
682	Xerolls-Rock outcrop complex, 20 to 60 percent north slopes	9	---	9	*
683	Xerolls-Rock outcrop complex, 30 to 65 percent north slopes	1,399	---	1,399	*
684	Yankeewell very cobbly sandy loam, 2 to 15 percent slopes	41,937	---	41,937	1.5
685	Yankeewell-Noidee complex, 2 to 10 percent slopes	4,309	---	4,309	0.2
686	Yapoah gravelly ashy loamy sand, 15 to 40 percent north slopes	411	---	411	*
687	Yapoah gravelly ashy loamy sand, 15 to 40 percent south slopes	608	---	608	*
688	Youtlkue ashy silt loam, 0 to 2 percent slopes	2,065	---	2,065	*
689	Zorravista fine sand, 0 to 5 percent slopes	39	---	39	*
690	Zorravista-Hinton complex, 0 to 8 percent slopes	8	---	8	*
691	Lithic Haploxerolls-Lava flows complex, 2 to 15 percent slopes	28,008	---	28,008	1.0
692	Steiger ashy loamy coarse sand, 0 to 15 percent slopes	15	312	327	*
693	Steiger ashy loamy coarse sand, high elevation, 15 to 30 percent slopes	---	397	397	*
694	Steiger ashy loamy coarse sand, low landscape position, 0 to 3 percent slopes	908	4,783	5,691	0.2
695	Ninemile gravelly loam, hummocky, 0 to 8 percent slopes	259	---	259	*
696	Shanahan ashy loamy coarse sand, 0 to 15 percent slopes	---	1,189	1,189	*
888	Denied access	2,317	---	2,317	*
999	Water	42,282	---	42,282	1.6
	Total	2,694,379	22,000	2,716,379	100.0

* Less than 0.1 percent.

Table 5.—Land Capability Classification

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
200:		
Abert	6s	---
201:		
Actem	6e	---
202:		
Alyan	6e	---
203:		
Anawalt	6e	---
204:		
Anawalt	6e	---
205:		
Anawalt	6e	---
Freznik	6e	---
206:		
Anawalt	6e	---
Oreneva	6e	---
207:		
Anawalt	6e	---
Raz	6e	---
208:		
Anawalt	6e	---
Rock outcrop	8	---
209:		
Atlow	7e	---
Rock outcrop	8	---
210:		
Baconcamp	6e	---
Clamp	7s	---
211:		
Baconcamp	6e	---
Rock outcrop	8	---
212:		
Bluesters	6e	---
213:		
Bluesters, dry	6e	---
214:		
Boilout	6e	---
215:		
Bonnick	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
216:		
Bonnick	6e	---
217:		
Bonnick	6s	---
Fort Rock	6s	---
218:		
Bonnick	6s	---
Fort Rock	6e	---
219:		
Bonnick, low precipitation	6s	---
Fort Rock, low precipitation	6e	---
220:		
Bonnick	6e	---
Kunceider	6e	---
221:		
Bonnick	6s	---
Morehouse	6e	---
222:		
Booth	6e	---
223:		
Booth	6e	---
Rock outcrop	8	---
224:		
Borobey	6e	---
225:		
Borobey	6e	---
226:		
Borobey	6e	---
227:		
Borobey	6s	---
Morehouse	6e	---
228:		
Borobey	6e	---
Oatmanflat	6e	---
229:		
Borobey	6s	---
Overallflat	6s	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
230:		
Brabble	6e	---
Calderwood	7s	---
231:		
Brace	6e	---
Foleylake	6e	---
232:		
Bridgewell	6w	---
233:		
Bridgewell	6w	---
234:		
Bullump, south	6e	---
Rock outcrop	8	---
Nuss, south	6e	---
236:		
Bunyard	6s	---
237:		
Cabinspring	6e	---
Chesebro	6e	---
Hayespring	6e	---
238:		
Calderwood	7s	---
McConnel	6e	---
239:		
Carryback, eroded	6e	---
240:		
Carryback	6e	---
241:		
Carryback	6e	---
Pearlwise	6e	---
242:		
Carvix	6e	---
243:		
Catlow	6e	---
244:		
Catlow	6e	---
Davey	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
245:		
Catnapp	7s	---
246:		
Chancelakes	6w	---
Silverash	6w	---
247:		
Chen	7s	---
Erakatak	6e	---
Lambring, north	6e	---
248:		
Chesebro	6e	---
Rock outcrop	8	---
249:		
Cinderfall	6e	---
Fort Rock	6e	---
Kunceider	6e	---
250:		
Cleavage	7s	---
Ninemile	6e	---
Westbutte	6e	---
251:		
Cleet	7s	---
252:		
Clurde	6e	---
253:		
Clurde	6e	---
Toll	6e	---
254:		
Connleyhills	6e	---
255:		
Connleyhills	6e	---
256:		
Cooperdraw	6e	---
Fertaline	6e	---
257:		
Corral, low precipitation	7s	---
258:		
Coztur	7s	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
259:		
Crackedground	6e	---
260:		
Crackedground	6e	---
261:		
Crackedground	6e	---
Kunceider	6e	---
262:		
Crackedground	6e	---
Milcan	6e	---
263:		
Crackedground	6e	---
Milcan	6e	---
Rock outcrop	8	---
264:		
Crackedground	6e	---
Wegert	6e	---
266:		
Deppy	7s	---
Rubble land	8	---
267:		
Deppy	7s	---
Tumtum	7s	---
268:		
Derallo	6e	---
Chesebro	6e	---
269:		
Derallo, north	6e	---
Rock outcrop	8	---
270:		
Derallo, south	6e	---
Rock outcrop	8	---
271:		
Diablopeak	7s	---
Yankeewell	7s	---
272:		
Drakesflat	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
273:		
Drakesflat	6e	---
274:		
Dune land	8	---
275:		
Dune land	8	---
Fossilake	6s	---
Salhouse	6e	---
276:		
Dune land	8	---
Morehouse	6e	---
277:		
Dune land	8	---
Salhouse	6e	---
278:		
Dunres	6e	---
279:		
Dunres, thick surface	6e	---
280:		
Dunres	6e	---
281:		
Dunres	6e	---
Henkle	6e	---
282:		
Dunres	6e	---
Moonbeam	6e	---
283:		
Dunres	6e	---
Moonbeam	7s	---
Nuss	7s	---
284:		
Dunres	6e	---
Murlose	6e	---
Nuss	7s	---
285:		
Dunres	6e	---
Moonbeam	7s	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
286:		
Dunres	6e	---
Norcross, cobbly ashy loam surface	6e	---
Norcross, very cobbly ashy fine sandy loam surface	6e	---
287:		
Edemaps	6e	---
Pernty	7s	---
Rock outcrop	8	---
288:		
Embal	6c	---
289:		
Embal	6c	---
Paulina	6w	---
290:		
Enko	6e	3e
291:		
Enko	6e	3e
292:		
Enko	6e	3e
293:		
Enko	6e	---
Catlow	6e	---
294:		
Enko	6e	3e
McConnel	6e	4e
295:		
Erakatak	6e	---
296:		
Erakatak	6e	---
Carryback	6e	---
297:		
Erakatak	6e	---
Leevan, south	6e	---
Rock outcrop	8	---
298:		
Erakatak	6e	---
Rock outcrop	8	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
299:		
Erakatak	6e	---
Rubble land	8	---
300:		
Felcher, south	6e	---
Camptank	6e	---
Rock outcrop	8	---
301:		
Felcher, south	6e	---
Fitzwater, north	6e	---
Rock outcrop	8	---
302:		
Felcher, south	6e	---
Oreneva, north	6e	---
Rock outcrop	8	---
303:		
Felcher, south	7s	---
Riddleranch	6e	---
Rock outcrop	8	---
304:		
Felcher, south	6e	---
Rock outcrop	8	---
305:		
Felcher, south	6e	---
Rock outcrop	8	---
306:		
Felcher, south	6e	---
Rock outcrop	8	---
307:		
Felcher, south	7s	---
Rock outcrop	8	---
Brezniak	7s	---
308:		
Felcher, south	6e	---
Rock outcrop	8	---
Westbutte, north	7s	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
309:		
Firelake	7s	---
Enko	6e	---
310:		
Fitzwater, south	7s	---
311:		
Fitzwater, north	6e	---
Rock outcrop	8	---
312:		
Flagstaff	6e	---
313:		
Flagstaff, ashy very fine sandy loam surface	6s	---
Flagstaff, ashy sandy loam surface	6s	---
314:		
Flagstaff	6s	---
Playas	8	---
315:		
Flagstaff	6s	---
Salhouse	6e	---
316:		
Foleylake	6e	---
Anawalt	6e	---
317:		
Fort Rock	6s	---
318:		
Fort Rock	6e	---
319:		
Fort Rock	6s	---
Bonnick	6s	---
320:		
Fort Rock	6s	---
Lapham	6s	---
321:		
Fort Rock, warm	6s	---
Lapham, warm	6e	---
322:		
Fort Rock	6s	---
Morehouse	6s	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
323:		
Fort Rock	6e	---
Morehouse	6e	---
324:		
Fort Rock, moist	6s	---
Morehouse, moist	6e	---
325:		
Fort Rock	6e	---
Suckerflat	6e	---
326:		
Fossilake	6s	---
327:		
Fossilake, cool	6s	---
Salhouse, cool	6e	---
328:		
Giranch	6e	---
Meld	6e	---
329:		
Glencabin, south	6e	---
330:		
Glencabin, north	6e	---
331:		
Glencabin, south	6e	---
332:		
Glencabin, south, dry	6e	---
Glencabin, north, dry	6e	---
333:		
Glencabin	6e	---
Rock outcrop	8	---
334:		
Glencabin	6e	---
Rock outcrop	8	---
335:		
Glencabin, gravelly ashy loamy sand surface	6e	---
Glencabin, ashy loamy sand surface	6e	---
Wanoga	6e	---
336:		
Glencabin	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
336:		
Yapoah	6e	---
Rock outcrop	8	---
338:		
Goodtack	6e	---
339:		
Goodtack, low precipitation	6e	---
340:		
Goodtack	6e	---
Borobey	6e	---
341:		
Goodtack	6e	---
Borobey	6e	---
342:		
Goodtack	6e	---
Morehouse	6e	---
343:		
Goodtack	6e	---
Sliptrack	6e	---
344:		
Gradon	6e	---
345:		
Greenmountain	6e	---
346:		
Greenmountain	6e	---
Jacksplace	6e	---
347:		
Greenmountain	6e	---
Lastcall	6e	---
348:		
Greenmountain	6e	---
Weglike	6e	---
349:		
Hackwood	6e	---
Westbutte, north	6e	---
350:		
Hager, cobbly loam surface	6e	---
Hager, extremely stony loam surface	7s	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
351:		
Hayespring	6e	---
352:		
Hayespring	6e	---
Dunres	6e	---
353:		
Hayespring	6e	---
Moonbeam	6e	---
354:		
Hayespring	6e	---
Moonbeam	6e	---
355:		
Hayespring, cobbly ashy loamy sand surface	6e	---
Moonbeam, cobbly ashy loam surface	6e	---
356:		
Hayespring, low precipitation	6e	---
Moonbeam, low precipitation	6e	---
357:		
Hayespring	6e	---
Senra	6e	---
358:		
Helphenstein	6s	---
359:		
Helphenstein, frequently ponded	6w	---
360:		
Helphenstein	6s	---
361:		
Helphenstein	6s	---
Kewake	6e	---
362:		
Helphenstein, frequently ponded	6w	---
Legler	6e	---
Playas	8	---
363:		
Helphenstein, frequently ponded	6w	---
Pitcheranch	6w	---
Reese	6s	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
364:		
Helphenstein	6s	---
Turpin	6e	---
Kewake	6e	---
365:		
Henkle	6e	---
Ludi	6e	---
366:		
Henkle	6e	---
Wanoga	6e	---
367:		
Henkle, dry	6e	---
Wanoga, dry	6e	---
368:		
Horning	6e	---
369:		
Horning	6s	---
Tonor	6s	---
370:		
Icene	6s	---
Playas	8	---
371:		
Ipsoot	6e	---
372:		
Ipsoot, north	6e	---
373:		
Ipsoot, south	6e	---
374:		
Jacksplace, moist	6e	---
375:		
Jacksplace	6e	---
376:		
Jacksplace	6e	---
377:		
Jacksplace	6e	---
378:		
Jacksplace	6e	---
Derallo	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
378:		
Glencabin	6e	---
379:		
Jacksplace	6e	---
Senra	6e	---
380:		
Kewake	6e	---
382:		
Kewake	6e	---
Helphenstein, frequently ponded	6w	---
383:		
Kewake	6e	---
Helphenstein, dry	6s	---
384:		
Kewake	6e	---
Icene	6s	---
385:		
Kewake	6e	---
Ozamis	5w	---
Reese	6s	---
386:		
Kewake	6e	---
Turpin	6e	---
387:		
Kewake, sodic	6e	---
Turpin, sodic	6e	---
388:		
Krackle, north	6e	---
Krackle, south	6e	---
389:		
Kunceider	6e	---
390:		
Kunceider	6e	---
Fort Rock	6e	---
391:		
Kunceider	6e	---
Rock outcrop	8	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
392:		
Kunceider	6e	---
Wegert	6e	---
393:		
Laidlaw	6e	---
394:		
Laidlaw	6e	---
395:		
Laidlaw, dry	6e	---
Wanoga, dry	6s	---
397:		
Lapham	6e	---
398:		
Lapine, north	6e	---
399:		
Lapine	6e	---
400:		
Lapine	6s	---
401:		
Lastcall	6e	---
402:		
Lastcall, gently sloping	6e	---
Lastcall, nearly level	6e	---
403:		
Lastcall	6e	---
Hayespring	6e	---
404:		
Lastcall	6e	---
Hayespring	6e	---
405:		
Lastcall	6e	---
Jacksplace	6e	---
Embal	6e	---
407:		
Lastcall	6e	---
Moonbeam	6e	---
408:		
Leevan	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
408:		
Fitzwater, south	6e	---
Chen	6e	---
409:		
Leevan, north	6e	---
Lambring, north	6e	---
Rock outcrop	8	---
410:		
Legler	6c	3c
411:		
Bridgewell	6w	---
Legler	6c	---
412:		
Bridgewell	6w	---
Chancelakes	6w	---
413:		
Lithic Haploxerolls, cool	7s	---
Lava flows	8	---
414:		
Lithic Haploxerolls, dry	7s	---
Lava flows	8	---
415:		
Locane	6e	---
416:		
Locane	6e	---
Anawalt	6e	---
417:		
Locane	6e	---
Deseed	6e	---
418:		
Locolake	7s	---
419:		
Locolake	6e	---
McConnel	6e	---
420:		
Lostforest	6e	---
Sandrock	6s	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
420:		
Morehouse	6e	---
422:		
Ludi	6e	---
423:		
Ludi, low precipitation, north	6e	---
424:		
Ludi, low precipitation, south	6e	---
425:		
Ludi, low precipitation, north	6e	---
426:		
Ludi, low precipitation, south	6e	---
427:		
Ludi	6e	---
428:		
Ludi, south	6e	---
Glassbutte	6e	---
Ludi, north	6e	---
429:		
Ludi	6e	---
Glassbutte	6e	---
430:		
Lyeflat	7e	---
431:		
Lyeflat	7e	---
432:		
Lyeflat, gravelly sandy loam surface	7e	---
Lyeflat, very cobbly sandy loam surface	7e	---
Rock outcrop	8	---
433:		
Lyeflat	7e	---
Rock outcrop	8	---
434:		
McConnel	6e	4e
435:		
McConnel, sodic substratum	6e	---
436:		
McConnel	6e	4e

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
437:		
McConnel	6e	4e
438:		
McConnel	6e	---
Davey	6e	---
439:		
McConnel	6e	---
Poorjug, overblown	6e	---
440:		
McConnel	6e	---
Turpin	6e	---
441:		
McNye	6e	---
Wildhill	7s	---
Rock outcrop	8	---
442:		
Meld	6e	---
Giranch	6e	---
443:		
Menbo, dry	6e	---
444:		
Merlin	7s	---
445:		
Mesman	6s	---
446:		
Mesman, slightly alkaline	6s	---
447:		
Mesman	6e	---
McConnel	6e	---
Kewake	6e	---
448:		
Milcan	6e	---
449:		
Milcan	6e	---
Jacksplace	6e	---
Rock outcrop	8	---
450:		
Millenium	6c	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
451:		
Millenium, basin floor	6c	---
452:		
Millenium	6c	---
Stauffer	6c	---
Raztack	6s	---
455:		
Moonbeam	6e	---
456:		
Moonbeam	6e	---
457:		
Moonbeam	6s	---
458:		
Moonbeam	6e	---
459:		
Moonbeam	6e	---
460:		
Moonbeam	6e	---
461:		
Moonbeam	6e	---
Connleyhills	6e	---
462:		
Moonbeam	6e	---
Goodtack	6e	---
463:		
Moonbeam	6e	---
Goodtack	6e	---
464:		
Moonbeam	6e	---
Hayespring	6e	---
465:		
Moonbeam, moist	6e	---
Hayespring, moist	6e	---
466:		
Moonbeam	6e	---
Meld	6e	---
467:		
Moonbeam	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass: Non-irrigated	Land capability subclass: Irrigated
467:		
Senra	6e	---
468:		
Moonbeam, gravelly ashy fine sandy loam surface	6e	---
Senra	6e	---
469:		
Moonbeam	6e	---
Senra	6e	---
Hayespring	6e	---
470:		
Morehouse	6s	---
471:		
Morehouse	6e	---
472:		
Morehouse	6e	---
473:		
Morehouse	6e	---
474:		
Morehouse, ashy fine sand surface	6s	---
Morehouse, ashy sand surface	6e	---
475:		
Morehouse	6s	---
Playas	8	---
476:		
Morfitt	6c	3c
477:		
Murlose	6e	---
478:		
Murlose	6e	---
479:		
Ninemile	6e	---
480:		
Ninemile, low precipitation	6e	---
481:		
Ninemile	6e	---
Arcia	6e	---
482:		
Ninemile	6e	---
Carvix	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
483:		
Ninemile	6e	---
Edemaps	6e	---
484:		
Ninemile	6e	---
Reluctan	6e	---
485:		
Ninemile	6e	---
Reluctan	6e	---
Rubble land	8	---
486:		
Ninemile, north	6e	---
Rock outcrop	8	---
Felcher, south	6e	---
487:		
Ninemile	6e	---
Westbutte	7s	---
488:		
Ninemile	6e	---
Westbutte	7s	---
Ninemile, extremely stony surface	7s	---
489:		
Noidee	7s	---
490:		
Norcross, extremely cobbly ashy loam surface	7s	---
Norcross, cobbly ashy fine sandy loam surface	6e	---
491:		
Norcross	7s	---
492:		
Norcross	6e	---
493:		
Oatmanflat	6c	---
494:		
Oatmanflat	6c	---
Borobey	6s	---
495:		
Old Camp	7s	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
496:		
Old Camp, south	7s	---
497:		
Old Camp	7s	---
Felcher, north	6e	---
Rock outcrop	8	---
498:		
Osoll	7s	---
Panlee	6e	---
Rock outcrop	8	---
499:		
Overallflat	6s	---
500:		
Overallflat, pluvial lake	6s	---
501:		
Overallflat	6s	---
Morehouse	6e	---
502:		
Overallflat	6s	---
Silverash	6w	---
503:		
Overallflat, hummocky	6s	---
Silverash	6w	---
504:		
Ozamis, saline	5w	---
505:		
Ozamis	5w	---
Reese	6s	---
506:		
Pait	6e	---
507:		
Paulina	6w	---
508:		
Paulina, very gravelly substratum	6w	---
509:		
Paulina	6w	---
Chinarise	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
511:		
Pernty	7s	---
512:		
Pernty	7s	---
Chesebro	6e	---
Rock outcrop	8	---
513:		
Pernty	7s	---
Cleavage	7s	---
514:		
Pernty, south	7s	---
Glencabin	6e	---
Rock outcrop	8	---
516:		
Pernty, south	7s	---
Westbutte, north	7s	---
Ninemile	6e	---
517:		
Picturerock	6s	---
518:		
Pitcheranch	6w	---
519:		
Pitcheranch	6w	---
Chinarise	6e	---
520:		
Playas	8	---
521:		
Playas, saline	8	---
522:		
Playas	8	---
Helphenstein	6s	---
523:		
Poorjug	6e	---
Poorjug, overblown	6e	---
524:		
Poorjug	6e	---
Rock outcrop	8	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
525:		
Porterfield	6e	---
Rock outcrop	8	---
526:		
Puzzlebark	6e	---
Morehouse, moderately steep	6e	---
Morehouse, gently sloping	6e	---
527:		
Puzzlebark	6e	---
Sandrock	6e	---
528:		
Rabbithills, overblown	6e	---
Rabbithills	6e	---
529:		
Rabbithills	6e	---
Rabbithills, overblown	6e	---
530:		
Rabbithills	6e	---
531:		
Rabbithills, sodic	6e	---
532:		
Rabbithills	6e	---
533:		
Rabbithills	6e	---
534:		
Rabbithills	6e	---
Helphenstein, frequently ponded	6w	---
535:		
Ratto	6e	---
536:		
Raz, overblown	6e	---
537:		
Raz	6e	---
Brace	6e	---
538:		
Raz, high precipitation	6e	---
Brace, high precipitation	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
539:		
Raz, low precipitation	6e	---
Brace, low precipitation	6e	---
540:		
Raz, overblown	6e	---
Brace, overblown	6e	---
541:		
Raz	6e	---
Poorjug	6e	---
542:		
Raz	6e	---
Reallis	6e	---
543:		
Raztack	6s	---
Silverash	6w	---
Embal	6c	---
544:		
Reallis	6s	---
545:		
Reallis	6s	---
546:		
Reallis, sandy loam surface	6s	---
Reallis, fine sandy loam surface	6s	---
547:		
Reallis	6e	---
Yankeewell	7s	---
548:		
Redcanyon, north	7s	---
Rock outcrop	8	---
549:		
Redcanyon, south	7s	---
Rock outcrop	8	---
550:		
Redcliff, south	6e	---
Rock outcrop	8	---
551:		
Reese	6s	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
551:		
Ozamis	5w	---
552:		
Reluctan	6e	---
553:		
Reluctan	6e	---
Arness	6e	---
554:		
Riddleranch, north	6e	---
555:		
Riddleranch, north	6e	---
556:		
Riddleranch, south	6e	---
Lambring, north	6e	---
Rock outcrop	8	---
557:		
Rinconflat	6e	---
558:		
Rock outcrop	8	---
Rubble land	8	---
559:		
Rock outcrop	8	---
Blackhills	7s	---
560:		
Rock outcrop	8	---
Blackhills	7s	---
Glencabin, north	6e	---
561:		
Rock outcrop	8	---
Felcher, south	6e	---
562:		
Rock outcrop	8	---
Shukash	6e	---
563:		
Rock outcrop	8	---
Xeric Haplocambids	7s	---
564:		
Rock outcrop	8	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
564:		
Xeric Haplocambids, south	7e	---
Rubble land	8	---
565:		
Rock outcrop	8	---
Xerolls, south	7s	---
566:		
Royst	6e	---
567:		
Royst	6e	---
Ninemile	6e	---
568:		
Royst	6e	---
Nuss	6e	---
569:		
Sagehen	7s	---
570:		
Sagehen	7s	---
Raz	6e	---
571:		
Salhouse	6e	---
572:		
Salhouse, strongly alkaline	6e	---
573:		
Salhouse	6e	---
Tonor	6s	---
574:		
Seharney	7s	---
575:		
Seharney	7s	---
Rabbithills	6e	---
Enko	6e	---
576:		
Senra	6e	---
577:		
Senra	6e	---
578:		
Senra	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
578:		
Borobey	6e	---
579:		
Senra	6e	---
Dunres	6e	---
580:		
Senra	6e	---
Goodtack	6e	---
581:		
Senra	6e	---
Goodtack	6e	---
582:		
Senra	6e	---
Goodtack	6e	---
Suckerflat	6e	---
583:		
Senra	6e	---
Hayespring	6e	---
584:		
Senra, droughty	6e	---
Hayespring, droughty	6e	---
585:		
Senra	6e	---
Moonbeam	6e	---
586:		
Shanahan	6s	---
587:		
Shanahan, low landscape position	6s	---
588:		
Shanahan, north	6s	---
Shukash	6s	---
589:		
Shukash	6e	---
590:		
Shukash, cool	6s	---
591:		
Shukash, north	6e	---
Rock outcrop	8	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
592:		
Shukash, south	6e	---
Rock outcrop	8	---
593:		
Shukash	6e	---
Rock outcrop	8	---
594:		
Shukash	6e	---
Rock outcrop	8	---
595:		
Shukash	6e	---
Rock outcrop	8	---
596:		
Shukash	6s	---
Shanahan	6s	---
597:		
Shukash	6e	---
Wanoga	6e	---
Rock outcrop	8	---
598:		
Sisters	6s	---
Wanoga	6s	---
599:		
Sliptrack	6e	---
Moonbeam	6e	---
600:		
Sliptrack	6e	---
Oatmanflat	6c	---
601:		
Snakepit	6s	---
602:		
Southcat	6e	---
603:		
Southcat	6e	---
Kewake	6e	---
604:		
Southcat	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
604:		
Playas	8	---
605:		
Spiderhole, very cobbly loamy sand surface	7s	---
Spiderhole, very gravelly loamy sand surface	7s	---
606:		
Stampede	6e	---
607:		
Steiger	6s	---
608:		
Steiger, cool	6s	---
609:		
Steiger	6e	---
610:		
Steiger, north	6e	---
Rock outcrop	8	---
611:		
Steiger, south	6e	---
Rock outcrop	8	---
612:		
Suckerflat	6e	---
613:		
Suckerflat	6e	---
614:		
Suckerflat	6e	---
615:		
Suckerflat, north	6e	---
Rock outcrop	8	---
616:		
Suckerflat, south	6e	---
Rock outcrop	8	---
617:		
Suckerflat	6e	---
Rock outcrop	8	---
618:		
Suckerflat	6e	---
Weglike	6e	---
619:		
Silverash	6w	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
620:		
Swalesilver	6w	---
621:		
Swalesilver	6w	---
622:		
Teguro	6e	---
623:		
Teguro	6e	---
624:		
Thompsoncabin, extremely bouldery	7s	---
Thompsoncabin	7s	---
Rock outcrop	8	---
625:		
Thompsoncabin	7s	---
Wildhill	6e	---
626:		
Thornlake	6s	---
627:		
Thornlake, nonsodic surface	6s	---
628:		
Thornlake, strongly alkaline	6s	---
Thornlake, moderately alkaline	6s	---
629:		
Thornlake	6e	---
Catlow	6e	---
Kewake	6e	---
630:		
Thornlake	6e	---
Kewake	6e	---
631:		
Thornlake	6s	---
Morehouse	6e	---
632:		
Thornlake	6s	---
Salhouse	6e	---
633:		
Thornlake, dunes	6e	---
Salhouse, dunes	6e	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
634:		
Thornlake	6s	---
Salhouse	6e	---
Fossilake	6s	---
635:		
Teguro	6e	---
Carryback	6e	---
636:		
Toll	6e	---
637:		
Toll	6e	---
Nevador	6e	---
638:		
Tonor	6s	---
639:		
Tuffcabin	6e	---
640:		
Turpin	6s	---
641:		
Turpin	6s	---
642:		
Turpin	6e	---
Boravall	6s	---
Playas	8	---
643:		
Turpin	6e	---
Kewake	6e	---
Playas	8	---
644:		
Turpin	6s	---
Playas	8	---
645:		
Turpin, saline	6s	---
Playas, saline	8	---
646:		
Turpin, sodic	6s	---
Playas, sodic	8	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
647:		
Turpin	6s	---
Rabbitcreek	6s	---
648:		
Turpin	6e	---
Reese	6s	---
649:		
Turpin	6e	---
Turpin, overblown	6e	---
650:		
Vitale	6e	---
651:		
Wagontire	6e	---
652:		
Wanoga, south	6e	---
653:		
Wanoga, south	6e	---
654:		
Wanoga	6e	---
Henkle	6e	---
655:		
Wanoga	6e	---
Henkle, cool	6e	---
656:		
Wanoga, dry	6e	---
Henkle, dry	6e	---
657:		
Wanoga, moist	6e	---
Henkle, moist	6e	---
658:		
Wanoga	6e	---
Henkle	6e	---
Rock outcrop	8	---
659:		
Wanoga, north	6e	---
Henkle, north	6e	---
Rock outcrop	8	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
660:		
Wanoga	6e	---
Laidlaw	6e	---
661:		
Wanoga	6e	---
Sisters	6e	---
663:		
Wegert	6e	---
664:		
Wegert, cool	6s	---
665:		
Wegert	6e	---
666:		
Wegert	6s	---
Kunceider	6s	---
667:		
Wegert, cool	6e	---
Kunceider, cool	6e	---
668:		
Wegert, high precipitation	6e	---
Kunceider, high precipitation	6e	---
669:		
Wegert	6e	---
Morehouse	6e	---
670:		
Weglike	6e	---
Jacksplace	6e	---
671:		
Weglike	6e	---
Suckerflat	6e	---
672:		
Westbutte, north	6e	---
Lambring, north	6e	---
Rock outcrop	8	---
673:		
Westbutte, north	6e	---
Rock outcrop	8	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
673:		
Pernty, south	7s	---
674:		
Widowspring	6c	---
675:		
Wildcatbutte	6e	---
Chesebro	6e	---
Glassbutte	6e	---
676:		
Wildcatbutte, south	6e	---
Glencabin, north	6e	---
Rock outcrop	8	---
677:		
Wildcatbutte, south	6e	---
Rock outcrop	8	---
678:		
Wildcatbutte	7s	---
Rock outcrop	8	---
679:		
Wildcatbutte	6e	---
Suckerflat, south	6e	---
Rock outcrop	8	---
680:		
Winterim	6e	---
681:		
Wiskan	6e	---
Rock outcrop	8	---
682:		
Xerolls, north	7s	---
Rock outcrop	8	---
683:		
Xerolls, north	7s	---
Rock outcrop	8	---
684:		
Yankeewell	7s	---
685:		
Yankeewell	7s	---

Table 5.—Land Capability Classification—Continued

Map symbol and soil name	Land capability subclass	
	Non-irrigated	Irrigated
685:		
Noidee	7s	---
686:		
Yapoah, north	6e	---
687:		
Yapoah, south	6e	---
688:		
Youtlkue	6s	---
689:		
Zorravista	7s	4s
690:		
Zorravista	7s	4s
Hinton	4s	4s
691:		
Lithic Haploxerolls	7s	---
Lava flows	8	---
692:		
Steiger	6e	---
693:		
Steiger, high elevation	6e	---
694:		
Steiger, low landscape position	6s	---
695:		
Ninemile, hummocky	6e	---
696:		
Shanahan	6e	---
888:		
Denied access	---	---
999:		
Water	8	---

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities

(Composition of forest understory is based on canopy cover. Composition of range ecological sites is based on air-dry weight.)

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
200: Abert	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
201: Actem	CLAYEY 10-12 PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Thurber’s needlegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Basin wildrye		5
				Cusick’s bluegrass		5
				Sandberg bluegrass		5
202: Alyan	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber’s needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
203: Anawalt	CLAYPAN 10-12 PZ (R023XY214OR)	Favorable	700	Bluebunch wheatgrass		50
		Normal	500	Low sagebrush		15
		Unfavorable	300	Sandberg bluegrass		10
				Bottlebrush squirreltail		5
204: Anawalt	SHALLOW GRAVELLY LOAM 10-12 PZ (R023XY215OR)	Favorable	500	Thurber’s needlegrass		50
		Normal	400	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		10
				Sandberg bluegrass		5
205: Anawalt	CLAYPAN 10-12 PZ (R023XY214OR)	Favorable	700	Bluebunch wheatgrass		50
		Normal	500	Low sagebrush		15
		Unfavorable	300	Sandberg bluegrass		10
				Bottlebrush squirreltail		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
205:						
Freznik	THIN SURFACE CLAYPAN 10-16 PZ (R023XY218OR)	Favorable	300	Sandberg bluegrass		45
		Normal	200	Low sagebrush		20
		Unfavorable	100	Longleaf hawksbeard		5
206:						
Anawalt	SHALLOW GRAVELLY LOAM 10-12 PZ (R023XY215OR)	Favorable	500	Thurber's needlegrass		50
		Normal	400	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		10
				Sandberg bluegrass		5
Oreneva	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5
207:						
Anawalt	CLAYPAN 10-12 PZ (R023XY214OR)	Favorable	700	Bluebunch wheatgrass		50
		Normal	500	Low sagebrush		15
		Unfavorable	300	Sandberg bluegrass		10
				Bottlebrush squirreltail		5
Raz	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5
208:						
Anawalt	CLAYPAN 10-12 PZ (R023XY214OR)	Favorable	700	Bluebunch wheatgrass		50
		Normal	500	Low sagebrush		15
		Unfavorable	300	Sandberg bluegrass		10
				Bottlebrush squirreltail		5
Rock outcrop.						
209:						
Atlow	LOAMY SLOPES 6-10 PZ (R024XY030OR)	Favorable	700	Indian ricegrass		30
		Normal	500	Wyoming big sagebrush		30
		Unfavorable	300	Spiny hopsage		15
				Thurber's needlegrass		10

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
209:						
Rock outcrop.						
210:						
Baconcamp	SHALLOW LOAM 16-25 PZ (R023XY501OR)	Favorable	1,600	Idaho fescue		45
		Normal	1,200	Rough fescue		15
		Unfavorable	800	Mountain big sagebrush		10
				Basin wildrye		5
				Letterman needlegrass		5
				Mountain brome		5
				Prairie Junegrass		5
				Sedge		5
				Western needlegrass		5
Clamp	CLAYPAN 16-25 PZ (R023XY507OR)	Favorable	1,100	Idaho fescue		45
		Normal	900	Low sagebrush		15
		Unfavorable	700	Onespike oatgrass		10
				Sheep fescue		10
				Letterman needlegrass		5
				Prairie Junegrass		5
				Western needlegrass		5
211:						
Baconcamp	SHALLOW LOAM 16-25 PZ (R023XY501OR)	Favorable	1,600	Idaho fescue		45
		Normal	1,200	Rough fescue		15
		Unfavorable	800	Mountain big sagebrush		10
				Basin wildrye		5
				Letterman needlegrass		5
				Mountain brome		5
				Prairie Junegrass		5
				Sedge		5
				Western needlegrass		5
Rock outcrop.						
212:						
Bluesters	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
213:						
Bluesters, dry	*Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/Festuca idahoensis* (CPS111)	Favorable	---	Mountain mahogany	20	
		Normal	---	Antelope bitterbrush	15	
		Unfavorable	---	Big sagebrush	15	
				Idaho fescue	15	
				Ponderosa pine	15	
				Western juniper	10	
				Bluebunch wheatgrass	3	
214:						
Boilout	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber's needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
215:						
Bonnick	SHRUBBY PUMICE PLAINS 8-11 PZ (R023XY606OR)	Favorable	1,200	Needleandthread		40
		Normal	1,000	Antelope bitterbrush		15
		Unfavorable	800	Mountain big sagebrush		15
				Indian ricegrass		5
				Ross' sedge		5
				Western needlegrass		5
216:						
Bonnick	PUMICE 10-12 PZ (R023XY210OR)	Favorable	1,100	Idaho fescue		50
		Normal	900	Antelope bitterbrush		15
		Unfavorable	700	Western needlegrass		15
				Mountain big sagebrush		10
				Ross' sedge		5
				Thurber's needlegrass		5
217:						
Bonnick	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
217:						
Fort Rock	DROUGHTY PUMICE PLAINS 8-11 PZ	Favorable	1,200	Needleandthread		50
	(R023XY608OR)	Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
218:						
Bonnick	PUMICE FLAT 10-12 PZ	Favorable	600	Needlegrass		40
	(R023XY508OR)	Normal	500	Mountain big sagebrush		20
		Unfavorable	400	Ross' sedge		15
Fort Rock	PUMICE FLAT 10-12 PZ	Favorable	600	Needlegrass		40
	(R023XY508OR)	Normal	500	Mountain big sagebrush		20
		Unfavorable	400	Ross' sedge		15
219:						
Bonnick, low precipitation	STIPA FESCUE PLAINS 8-10 PZ	Favorable	1,100	Needleandthread		40
	(R023XY666OR)	Normal	900	Idaho fescue		15
		Unfavorable	700	Mountain big sagebrush		10
Fort Rock, low precipitation	STIPA FESCUE PLAINS 8-10 PZ	Favorable	1,100	Needleandthread		40
	(R023XY666OR)	Normal	900	Idaho fescue		15
		Unfavorable	700	Mountain big sagebrush		10
220:						
Bonnick	JUNIPER HILLS 8-11 PZ	Favorable	900	Mountain big sagebrush		20
	(R010XA675OR)	Normal	600	Needleandthread		20
		Unfavorable	400	Bluebunch wheatgrass		10
				Idaho fescue		5
				Thurber's needlegrass		5
				Western needlegrass		5
Kunceider	JUNIPER HILLS 8-11 PZ	Favorable	900	Mountain big sagebrush		20
	(R010XA675OR)	Normal	600	Needleandthread		20
		Unfavorable	400	Bluebunch wheatgrass		10
				Idaho fescue		5
				Thurber's needlegrass		5
				Western needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
221:						
Bonnick	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
Morehouse	PUMICE DUNES 8-10 PZ (R023XY610OR)	Favorable	800	Indian ricegrass		35
		Normal	600	Basin big sagebrush		25
		Unfavorable	500	Beardless wildrye		5
				Rabbitbrush		5
				Small rabbitbrush		5
222:						
Booth	STONY CLAYPAN 14-20 PZ (R021XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	500	Sandberg bluegrass		15
				Bluebunch wheatgrass		5
				Onespike oatgrass		5
223:						
Booth	STONY CLAYPAN 14-20 PZ (R021XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	500	Sandberg bluegrass		15
				Bluebunch wheatgrass		5
				Onespike oatgrass		5
Rock outcrop.						
224:						
Borobey	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
225:						
Borobey	STIPA FESCUE BASIN 8-11 PZ (R023XY670OR)	Favorable	700	Needleandthread		35
		Normal	600	Idaho fescue		25
		Unfavorable	500	Basin big sagebrush		10
				Thurber's needlegrass		5
				Indian ricegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
226:						
Borobey	PUMICE 10-12 PZ (R023XY210OR)	Favorable	1,100	Idaho fescue		50
		Normal	900	Antelope bitterbrush		15
		Unfavorable	700	Western needlegrass		15
				Mountain big sagebrush		10
				Ross’ sedge		5
				Thurber’s needlegrass		5
227:						
Borobey	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
Morehouse	PUMICE DUNES 8-10 PZ (R023XY610OR)	Favorable	800	Indian ricegrass		35
		Normal	600	Basin big sagebrush		25
		Unfavorable	500	Beardless wildrye		5
				Rabbitbrush		5
				Small rabbitbrush		5
228:						
Borobey	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber’s needlegrass		5
				Western needlegrass		5
Oatmanflat	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber’s needlegrass		5
				Western needlegrass		5
229:						
Borobey	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross’ sedge		5
				Thurber’s needlegrass		5
Overallflat	DRY PONDED CLAY 6-10 PZ (R024XY007OR)	Favorable	1,000	Beardless wildrye		60
		Normal	700	Basin big sagebrush		10
		Unfavorable	500	Basin wildrye		10
				Bottlebrush squirreltail		10

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
230:						
Brabble	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Calderwood	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
231:						
Brace	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Foleylake	THIN SURFACE 8-14 PZ (R024XY021OR)	Favorable	500	Black sagebrush		60
		Normal	400	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		10
				Thurber's needlegrass		5
232:						
Bridgewell	LAKEBED (R023XY100OR)	Favorable	1,600	Spikerush		40
		Normal	1,100	Dock		25
		Unfavorable	700	Baltic rush		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Povertyweed		5
233:						
Bridgewell	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Silver sagebrush		20
		Unfavorable	1,000	Beardless wildrye		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Sedge		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
234:						
Bullump, south	SOUTH SLOPES 14-18 PZ	Favorable	1,200	Bluebunch wheatgrass		50
	(R021XY308OR)	Normal	900	Mountain big sagebrush		10
		Unfavorable	600	Antelope bitterbrush		5
				Idaho fescue		5
				Sandberg bluegrass		5
Rock outcrop.						
Nuss, south	MAHOGANY ROCKLAND 10-20 PZ	Favorable	1,200	Idaho fescue		40
	(R021XY403OR)	Normal	1,000	Antelope bitterbrush		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Curl-leaf mountain mahogany		10
				Ponderosa pine		5
				Western juniper		5
236:						
Bunyard	ALKALINE BASIN 8-10 PZ	Favorable	500	Black greasewood		30
	(R024XY625OR)	Normal	300	Basin big sagebrush		15
		Unfavorable	200	Basin wildrye		15
				Inland saltgrass		10
				Bottlebrush squirreltail		5
				Shadscale		5
				Spiny hopsage		5
237:						
Cabinspring	SOUTH SLOPES 12-16 PZ	Favorable	1,400	Bluebunch wheatgrass		45
	(R023XY302OR)	Normal	1,100	Idaho fescue		10
		Unfavorable	700	Antelope bitterbrush		5
				Basin big sagebrush		5
				Mountain big sagebrush		5
				Wyoming big sagebrush		5
Chesebro	NORTH SLOPES 12-16 PZ	Favorable	1,500	Idaho fescue		45
	(R023XY310OR)	Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
237:						
Hayespring	STONY LOAM 10-12 PZ (R023XY516OR)	Favorable	1,000	Idaho fescue		45
		Normal	800	Antelope bitterbrush		10
		Unfavorable	600	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Thurber's needlegrass		5
				Western juniper		5
238:						
Calderwood	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
McConnel	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber's needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
239:						
Carryback, eroded	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
240:						
Carryback	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
241:						
Carryback	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
241:						
Pearlwise	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
242:						
Carvix	SWALE 10-14 PZ (R023XY202OR)	Favorable	2,000	Basin wildrye		35
		Normal	1,800	Basin big sagebrush		20
		Unfavorable	1,500	Bluebunch wheatgrass		15
				Idaho fescue		10
				Thurber's needlegrass		10
				Western needlegrass		5
243:						
Catlow	SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)	Favorable	800	Indian ricegrass		20
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	500	Black greasewood		10
244:						
Catlow	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber's needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
Davey	SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)	Favorable	800	Indian ricegrass		20
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	500	Black greasewood		10
245:						
Catnapp	SODIC PLATEAU 8-10 PZ (R024XY651OR)	Favorable	400	Low sagebrush		35
		Normal	300	Shadscale		25
		Unfavorable	200	Sandberg bluegrass		15
				Bottlebrush squirreltail		10
				Thurber's needlegrass		10
				Bluebunch wheatgrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
246:						
Chancelakes-----------	LAKEBED (R023XY100OR)	Favorable	1,600	Spikerush		40
		Normal	1,100	Dock		25
		Unfavorable	700	Baltic rush		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Povertyweed		5
Silverash-------------	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Silver sagebrush		20
		Unfavorable	1,000	Beardless wildrye		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Sedge		5
247:						
Chen------------------	SHALLOW NORTH 12-16 PZ (R023XY312OR)	Favorable	1,000	Idaho fescue		60
		Normal	700	Low sagebrush		15
		Unfavorable	500	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
Erakatak--------------	SOUTH SLOPES 12-16 PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		45
		Normal	1,100	Idaho fescue		10
		Unfavorable	700	Antelope bitterbrush		5
				Basin big sagebrush		5
				Mountain big sagebrush		5
				Wyoming big sagebrush		5
Lambring, north-------	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
248:						
Chesebro--------------	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
Rock outcrop.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
249:						
Cinderfall	PUMICE PLAINS 8-11 PZ (R023XY607OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Mountain big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
				Western needlegrass		5
Fort Rock	SHRUBBY PUMICE PLAINS 8-11 PZ (R023XY606OR)	Favorable	1,200	Needleandthread		40
		Normal	1,000	Antelope bitterbrush		15
		Unfavorable	800	Mountain big sagebrush		15
				Indian ricegrass		5
				Ross' sedge		5
				Western needlegrass		5
Kunceider	PUMICE PLAINS 8-11 PZ (R023XY607OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Mountain big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
				Western needlegrass		5
250:						
Cleavage	CLAYPAN 14-20 PZ (R021XY215OR)	Favorable	1,000	Idaho fescue		40
		Normal	800	Low sagebrush		15
		Unfavorable	500	Sandberg bluegrass		15
				Bluebunch wheatgrass		5
				Antelope bitterbrush		3
				Buckwheat		3
Ninemile	THIN SURFACE CLAYPAN 10-16 PZ (R023XY218OR)	Favorable	300	Sandberg bluegrass		45
		Normal	200	Low sagebrush		20
		Unfavorable	100	Longleaf hawksbeard		5
Westbutte	SHALLOW LOAM 14-18 PZ (R021XY212OR)	Favorable	1,200	Idaho fescue		40
		Normal	900	Antelope bitterbrush		15
		Unfavorable	600	Bluebunch wheatgrass		15
				Basin wildrye		5
				Mountain big sagebrush		5
				Sandberg bluegrass		5
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
251:						
Cleet	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
252:						
Clurde	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	2,000	Basin big sagebrush		5
253:						
Clurde	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	2,000	Basin big sagebrush		5
Toll	DUNES (R024XY110OR)	Favorable	800	Needleandthread		30
		Normal	500	Indian ricegrass		20
		Unfavorable	300	Basin big sagebrush		15
				Basin wildrye		15
				Beardless wildrye		10
				Antelope bitterbrush		5
254:						
Connleyhills	JUNIPER PUMICE PLAINS 8-11 PZ (R010XA659OR)	Favorable	800	Idaho fescue		45
		Normal	600	Mountain big sagebrush		10
		Unfavorable	400	Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
255:						
Connleyhills	STONY LOAM 10-12 PZ (R023XY516OR)	Favorable	1,000	Idaho fescue		45
		Normal	800	Antelope bitterbrush		10
		Unfavorable	600	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Thurber's needlegrass		5
				Western juniper		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
256:						
Cooperdraw	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Fertaline	SHALLOW GRAVELLY LOAM 10-12 PZ (R023XY215OR)	Favorable	500	Thurber's needlegrass		50
		Normal	400	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		10
				Sandberg bluegrass		5
257:						
Corral, low precipitation	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber's needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
258:						
Coztur	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5
259:						
Crackedground	SANDY LOAM 10-12 PZ (R023XY213OR)	Favorable	1,100	Needleandthread		50
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Indian ricegrass		10
				Basin wildrye		5
260:						
Crackedground	DROUGHTY PUMICE 9-12 PZ (R023XY515OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Mountain big sagebrush		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
261:						
Crackedground	PUMICE PLAINS 8-11 PZ	Favorable	1,200	Needleandthread		50
	(R023XY607OR)	Normal	1,000	Mountain big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
				Western needlegrass		5
Kunceider	JUNIPER PUMICE FLAT 8-10 PZ	Favorable	1,000	Needleandthread		40
	(R010XA027OR)	Normal	800	Idaho fescue		10
		Unfavorable	600	Mountain big sagebrush		10
				Indian ricegrass		5
				Needlegrass		5
				Thurber's needlegrass		5
				Western juniper		5
262:						
Crackedground	PUMICE PLAINS 8-11 PZ	Favorable	1,200	Needleandthread		50
	(R023XY607OR)	Normal	1,000	Mountain big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
				Western needlegrass		5
Milcan	PUMICE PLAINS 8-11 PZ	Favorable	1,200	Needleandthread		50
	(R023XY607OR)	Normal	1,000	Mountain big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
				Western needlegrass		5
263:						
Crackedground	JUNIPER PUMICE FLAT 8-10 PZ	Favorable	1,000	Needleandthread		40
	(R010XA027OR)	Normal	800	Idaho fescue		10
		Unfavorable	600	Mountain big sagebrush		10
				Indian ricegrass		5
				Needlegrass		5
				Thurber's needlegrass		5
				Western juniper		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
263:						
Milcan	JUNIPER PUMICE FLAT 8-10 PZ	Favorable	1,000	Needleandthread		40
	(R010XA027OR)	Normal	800	Idaho fescue		10
		Unfavorable	600	Mountain big sagebrush		10
				Indian ricegrass		5
				Needlegrass		5
				Thurber's needlegrass		5
				Western juniper		5
Rock outcrop.						
264:						
Crackedground	PUMICE FLAT 10-12 PZ	Favorable	600	Needlegrass		40
	(R023XY508OR)	Normal	500	Mountain big sagebrush		20
		Unfavorable	400	Ross' sedge		15
Wegert	PUMICE FLAT 10-12 PZ	Favorable	600	Needlegrass		40
	(R023XY508OR)	Normal	500	Mountain big sagebrush		20
		Unfavorable	400	Ross' sedge		15
266:						
Deppy	DESERT LOAM 6-10 PZ	Favorable	700	Shadscale		40
	(R024XY015OR)	Normal	500	Bud sagebrush		30
		Unfavorable	400	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Rubble land.						
267:						
Deppy	DESERT LOAM 6-10 PZ	Favorable	700	Shadscale		40
	(R024XY015OR)	Normal	500	Bud sagebrush		30
		Unfavorable	400	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Tumtum	SHALLOW LOAM 8-10 PZ	Favorable	700	Thurber's needlegrass		35
	(R024XY017OR)	Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
268:						
Derallo----------------	JUNIPER SOUTH SLOPES 12-16 PZ	Favorable	700	Bluebunch wheatgrass		25
	(R023XY320OR)	Normal	500	Idaho fescue		20
		Unfavorable	300	Thurber's needlegrass		15
				Western juniper		15
				Mountain big sagebrush		10
				Bluegrass		8
Chesebro---------------	JUNIPER PUMICE NORTH 10-14 PZ	Favorable	1,100	Idaho fescue		40
	(R010XA026OR)	Normal	900	Bluebunch wheatgrass		20
		Unfavorable	700	Mountain big sagebrush		10
				Sandberg bluegrass		5
				Western juniper		5
269:						
Derallo, north---------	JUNIPER PUMICE NORTH 10-14 PZ	Favorable	1,100	Idaho fescue		40
	(R010XA026OR)	Normal	900	Bluebunch wheatgrass		20
		Unfavorable	700	Mountain big sagebrush		10
				Sandberg bluegrass		5
				Western juniper		5
Rock outcrop.						
270:						
Derallo, south---------	DROUGHTY SOUTH SLOPES 11-13 PZ	Favorable	1,000	Bluebunch wheatgrass		25
	(R023XY301OR)	Normal	800	Idaho fescue		20
		Unfavorable	500	Thurber needlegrass		15
				Western juniper		15
				Mountain big sagebrush		10
				Cusick's bluegrass		8
Rock outcrop.						
271:						
Diablopeak-------------	LOW SODIC TERRACE 6-10 PZ	Favorable	600	Black greasewood		25
	(R024XY013OR)	Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
271:						
Yankeewell	HIGH SODIC HILLS 8-11 PZ (R024XY648OR)	Favorable	450	Wyoming big sagebrush		15
		Normal	350	Bluebunch wheatgrass		10
		Unfavorable	250	Bottlebrush squirreltail		10
				Shadscale		10
				Basin big sagebrush		5
				Bud sagebrush		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Thurber's needlegrass		5
272:						
Drakesflat	CLAYEY 10-12 PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Thurber's needlegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Basin wildrye		5
				Cusick's bluegrass		5
				Sandberg bluegrass		5
273:						
Drakesflat	CLAYEY 10-12 PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Thurber's needlegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Basin wildrye		5
				Cusick's bluegrass		5
				Sandberg bluegrass		5
274:						
Dune land.						
275:						
Dune land.						
Fossilake	THIN SURFACE SODIC FLAT (R024XY614OR)	Favorable	500	Inland saltgrass		80
		Normal	300	Lemmon's alkaligrass		5
		Unfavorable	150	Sandberg bluegrass		5
Salhouse	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
276:						
Dune land.						
Morehouse	PUMICE DUNES 8-10 PZ (R023XY610OR)	Favorable	800	Indian ricegrass		35
		Normal	600	Basin big sagebrush		25
		Unfavorable	500	Beardless wildrye		5
				Rabbitbrush		5
				Small rabbitbrush		5
277:						
Dune land.						
Salhouse	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
278:						
Dunres	STONY LOAM 10-12 PZ (R023XY516OR)	Favorable	1,000	Idaho fescue		45
		Normal	800	Antelope bitterbrush		10
		Unfavorable	600	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Thurber's needlegrass		5
				Western juniper		5
279:						
Dunres, thick surface	DROUGHTY PUMICE 9-12 PZ (R023XY515OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Mountain big sagebrush		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Thurber's needlegrass		5
280:						
Dunres	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber's needlegrass		5
				Western needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
281:						
Dunres	SR DRY PINE 14-16 PZ (R010XC082OR)	Favorable	1,200	Idaho fescue		45
		Normal	900	Bluebunch wheatgrass		35
		Unfavorable	600	Antelope bitterbrush		5
				Mountain big sagebrush		5
				Sandberg bluegrass		5
				Western juniper		3
				Ponderosa pine		2
Henkle	PINE-MAHOGANY-FESCUE 16-20 PZ (R021XY411OR)	Favorable	1,200	Idaho fescue		35
		Normal	1,000	Antelope bitterbrush		10
		Unfavorable	800	Curl-leaf mountain mahogany		5
				Pacific serviceberry		5
				Ponderosa pine		5
				Ross' sedge		5
				Sandberg bluegrass		5
282:						
Dunres	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber's needlegrass		5
				Western needlegrass		5
Moonbeam	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
283:						
Dunres	JD SHRUBBY MOUNTAIN 12-16 PZ (R010XB028OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,500	Antelope bitterbrush		15
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Bluegrass		5
				Mountain big sagebrush		5
				Thurber's needlegrass		5
Moonbeam	THIN SURFACE CLAYPAN 10-16 PZ (R023XY218OR)	Favorable	300	Sandberg bluegrass		45
		Normal	200	Low sagebrush		20
		Unfavorable	100	Longleaf hawksbeard		5
Nuss	MAHOGANY ROCKLAND 10-20 PZ (R021XY403OR)	Favorable	1,200	Idaho fescue		40
		Normal	1,000	Antelope bitterbrush		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Curl-leaf mountain mahogany		10
				Ponderosa pine		5
				Western juniper		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
284:						
Dunres	JD SHRUBBY MOUNTAIN 12-16 PZ (R010XB028OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,500	Antelope bitterbrush		15
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Bluegrass		5
				Mountain big sagebrush		5
				Thurber's needlegrass		5
Murlose	JUNIPER DRY PINE 14-16 PZ (R021XY508OR)	Favorable	1,200	Idaho fescue		25
		Normal	1,000	Bluebunch wheatgrass		20
		Unfavorable	800	Antelope bitterbrush		10
				Curl-leaf mountain mahogany		5
				Ponderosa pine		5
				Western juniper		5
Nuss	MAHOGANY ROCKLAND 10-20 PZ (R021XY403OR)	Favorable	1,200	Idaho fescue		40
		Normal	1,000	Antelope bitterbrush		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Curl-leaf mountain mahogany		10
				Ponderosa pine		5
				Western juniper		5
285:						
Dunres	STONY LOAM 10-12 PZ (R023XY516OR)	Favorable	1,000	Idaho fescue		45
		Normal	800	Antelope bitterbrush		10
		Unfavorable	600	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Thurber's needlegrass		5
				Western juniper		5
Moonbeam	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
286:						
Dunres	STONY LOAM 10-12 PZ (R023XY516OR)	Favorable	1,000	Idaho fescue		45
		Normal	800	Antelope bitterbrush		10
		Unfavorable	600	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Thurber's needlegrass		5
				Western juniper		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
286:						
Norcross, cobbly ashy loam surface	JUNIPER CLAYPAN 12-16 PZ (R021XY505OR)	Favorable	1,000	Idaho fescue		35
		Normal	800	Bluebunch wheatgrass		20
		Unfavorable	500	Low sagebrush		10
				Antelope bitterbrush		5
				Sandberg bluegrass		5
				Western juniper		5
Norcross, very cobbly ashy fine sandy loam surface	SHALLOW STONY 10-20 PZ (R021XY204OR)	Favorable	300	Sandberg bluegrass		60
		Normal	250	Low sagebrush		10
		Unfavorable	150	Bluebunch wheatgrass		5
				Idaho fescue		5
				Onespike oatgrass		5
				Thurber’s needlegrass		5
287:						
Edemaps	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber’s needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
Pernty	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber’s needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
Rock outcrop.						
288:						
Embal	SWALE 10-14 PZ (R023XY202OR)	Favorable	2,000	Basin wildrye		35
		Normal	1,800	Basin big sagebrush		20
		Unfavorable	1,500	Bluebunch wheatgrass		15
				Idaho fescue		10
				Thurber’s needlegrass		10
				Western needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
289:						
Embal	LOAMY BOTTOM (R023XY104OR)	Favorable	6,000	Basin wildrye		75
		Normal	4,500	Basin big sagebrush		10
		Unfavorable	2,000	Beardless wildrye		5
Paulina	SEMI WET MEADOW (R023XY414OR)	Favorable	2,200	Leiberg's bluegrass		40
		Normal	2,000	Slender wheatgrass		40
		Unfavorable	1,500	Mat muhly		5
				Nebraska sedge		5
				Prairie Junegrass		5
				Sandberg bluegrass		5
290:						
Enko	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
291:						
Enko	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber's needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
292:						
Enko	SANDY LOAM 8-10 PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		15
293:						
Enko	SANDY LOAM 8-10 PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		15
Catlow	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber's needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
294:						
Enko	SANDY LOAM 8-10 PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		15

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
294:						
McConnel	SANDY LOAM 8-10 PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		15
295:						
Erakatak	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
296:						
Erakatak	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
Carryback	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
297:						
Erakatak	SOUTH SLOPES 12-16 PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		45
		Normal	1,100	Idaho fescue		10
		Unfavorable	700	Antelope bitterbrush		5
				Basin big sagebrush		5
				Mountain big sagebrush		5
				Wyoming big sagebrush		5
Leevan, south	SHALLOW SOUTH SLOPES 8-12 PZ (R023XY600OR)	Favorable	1,100	Bluebunch wheatgrass		40
		Normal	900	Thurber's needlegrass		10
		Unfavorable	700	Idaho fescue		5
				Low sagebrush		5
				Sandberg bluegrass		5
Rock outcrop.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
298:						
Erakatak	JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)	Favorable	700	Bluebunch wheatgrass		25
		Normal	500	Idaho fescue		20
		Unfavorable	300	Thurber's needlegrass		15
				Western juniper		15
				Mountain big sagebrush		10
				Bluegrass		8
Rock outcrop.						
299:						
Erakatak	SOUTH SLOPES 14-18 PZ (R021XY308OR)	Favorable	1,200	Bluebunch wheatgrass		50
		Normal	900	Mountain big sagebrush		10
		Unfavorable	600	Antelope bitterbrush		5
				Idaho fescue		5
				Sandberg bluegrass		5
Rubble land.						
300:						
Felcher, south	SOUTH SLOPES 10-12 PZ (R023XY300OR)	Favorable	900	Bluebunch wheatgrass		50
		Normal	700	Thurber's needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Camptank	THIN SURFACE 8-14 PZ (R024XY021OR)	Favorable	500	Black sagebrush		60
		Normal	400	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		10
				Thurber's needlegrass		5
Rock outcrop.						
301:						
Felcher, south	SOUTH SLOPES 10-12 PZ (R023XY300OR)	Favorable	900	Bluebunch wheatgrass		50
		Normal	700	Thurber's needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
301:						
Fitzwater, north	NORTH SLOPES 10-12 PZ	Favorable	1,300	Idaho fescue		50
	(R023XY308OR)	Normal	1,000	Bluebunch wheatgrass		15
		Unfavorable	700	Cusick’s bluegrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
Rock outcrop.						
302:						
Felcher, south	SOUTH SLOPES 8-10 PZ	Favorable	1,100	Bluebunch wheatgrass		30
	(R024XY638OR)	Normal	900	Thurber’s needlegrass		25
		Unfavorable	700	Wyoming big sagebrush		20
				Basin big sagebrush		5
Oreneva, north	ARID NORTH 8-10 PZ	Favorable	900	Bluebunch wheatgrass		40
	(R023XY602OR)	Normal	600	Thurber’s needlegrass		5
		Unfavorable	400	Wyoming big sagebrush		5
Rock outcrop.						
303:						
Felcher, south	SOUTH SLOPES 10-12 PZ	Favorable	900	Bluebunch wheatgrass		50
	(R023XY300OR)	Normal	700	Thurber’s needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Riddleranch	ARID NORTH 8-10 PZ	Favorable	900	Bluebunch wheatgrass		40
	(R023XY602OR)	Normal	600	Thurber’s needlegrass		5
		Unfavorable	400	Wyoming big sagebrush		5
Rock outcrop.						
304:						
Felcher, south	SOUTH SLOPES 10-12 PZ	Favorable	900	Bluebunch wheatgrass		50
	(R023XY300OR)	Normal	700	Thurber’s needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Rock outcrop.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
305:						
Felcher, south	SOUTH SLOPES 10-12 PZ (R023XY300OR)	Favorable	900	Bluebunch wheatgrass		50
		Normal	700	Thurber's needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Rock outcrop.						
306:						
Felcher, south	SOUTH SLOPES 10-12 PZ (R023XY300OR)	Favorable	900	Bluebunch wheatgrass		50
		Normal	700	Thurber's needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Rock outcrop.						
307:						
Felcher, south	SOUTH SLOPES 10-12 PZ (R023XY300OR)	Favorable	900	Bluebunch wheatgrass		50
		Normal	700	Thurber's needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Rock outcrop.						
Brezniak	SOUTH SLOPES 10-12 PZ (R023XY300OR)	Favorable	900	Bluebunch wheatgrass		50
		Normal	700	Thurber's needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
308:						
Felcher, south	SOUTH SLOPES 10-12 PZ (R023XY300OR)	Favorable	900	Bluebunch wheatgrass		50
		Normal	700	Thurber's needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Rock outcrop.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
308:						
Westbutte, north	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
309:						
Firelake	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber’s needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Enko	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
310:						
Fitzwater, south	SOUTH SLOPES 12-16 PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		45
		Normal	1,100	Idaho fescue		10
		Unfavorable	700	Antelope bitterbrush		5
				Basin big sagebrush		5
				Mountain big sagebrush		5
				Wyoming big sagebrush		5
311:						
Fitzwater, north	NORTH SLOPES 10-12 PZ (R023XY308OR)	Favorable	1,300	Idaho fescue		50
		Normal	1,000	Bluebunch wheatgrass		15
		Unfavorable	700	Cusick’s bluegrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
Rock outcrop.						
312:						
Flagstaff	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
313:						
Flagstaff, ashy very fine sandy loam surface	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
Flagstaff, ashy sandy loam surface	ALKALINE BASIN 8-10 PZ (R024XY625OR)	Favorable	500	Black greasewood		30
		Normal	300	Basin big sagebrush		15
		Unfavorable	200	Basin wildrye		15
				Inland saltgrass		10
				Bottlebrush squirreltail		5
				Shadscale		5
				Spiny hopsage		5
314:						
Flagstaff	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
Playas.						
315:						
Flagstaff	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
Salhouse	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
316:						
Foleylake	THIN SURFACE 8-14 PZ (R024XY021OR)	Favorable	500	Black sagebrush		60
		Normal	400	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		10
				Thurber's needlegrass		5
Anawalt	CLAYPAN 10-12 PZ (R023XY214OR)	Favorable	700	Bluebunch wheatgrass		50
		Normal	500	Low sagebrush		15
		Unfavorable	300	Sandberg bluegrass		10
				Bottlebrush squirreltail		5
317:						
Fort Rock	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
318:						
Fort Rock	JUNIPER PUMICE FLAT 8-10 PZ (R010XA027OR)	Favorable	1,000	Needleandthread		40
		Normal	800	Idaho fescue		10
		Unfavorable	600	Mountain big sagebrush		10
				Indian ricegrass		5
				Needlegrass		5
				Thurber's needlegrass		5
				Western juniper		5
319:						
Fort Rock	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
Bonnick	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
320:						
Fort Rock	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
320:						
Lapham	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross’ sedge		5
				Thurber’s needlegrass		5
321:						
Fort Rock, warm	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
Lapham, warm	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
322:						
Fort Rock	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
Morehouse	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
323:						
Fort Rock	PUMICE PLAINS 8-11 PZ (R023XY607OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Mountain big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Rabbitbrush		5
				Ross’ sedge		5
				Thurber’s needlegrass		5
				Western needlegrass		5
Morehouse	PUMICE PLAINS 8-11 PZ (R023XY607OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Mountain big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Rabbitbrush		5
				Ross’ sedge		5
				Thurber’s needlegrass		5
				Western needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
324:						
Fort Rock, moist	DROUGHTY BOTTOM 6-10 PZ	Favorable	1,700	Basin wildrye		55
	(R024XY609OR)	Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
Morehouse, moist	DROUGHTY BOTTOM 6-10 PZ	Favorable	1,700	Basin wildrye		55
	(R024XY609OR)	Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
325:						
Fort Rock	DROUGHTY BOTTOM 6-10 PZ	Favorable	1,700	Basin wildrye		55
	(R024XY609OR)	Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
Suckerflat	DROUGHTY PUMICE PLAINS 8-11 PZ	Favorable	1,200	Needleandthread		50
	(R023XY608OR)	Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
326:						
Fossilake	THIN SURFACE SODIC FLAT	Favorable	500	Inland saltgrass		80
	(R024XY614OR)	Normal	300	Lemmon's alkaligrass		5
		Unfavorable	150	Sandberg bluegrass		5
327:						
Fossilake, cool	SODIC LAKE TERRACE (R024XY114OR)	Favorable	700	Inland saltgrass		60
		Normal	500	Alkaligrass		20
		Unfavorable	300	Greasewood		15
Salhouse, cool	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
328:						
Giranch	DROUGHTY LOAM 11-13 PZ	Favorable	1,100	Idaho fescue		35
	(R023XY316OR)	Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
328:						
Meld	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
329:						
Glencabin, south	PUMICE SOUTH SLOPES 10-14 PZ (R023XY612OR)	Favorable	900	Idaho fescue		45
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Antelope bitterbrush		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
330:						
Glencabin, north	JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)	Favorable	1,100	Idaho fescue		40
		Normal	900	Bluebunch wheatgrass		20
		Unfavorable	700	Mountain big sagebrush		10
				Sandberg bluegrass		5
				Western juniper		5
331:						
Glencabin, south	PUMICE SOUTH SLOPES 10-14 PZ (R023XY612OR)	Favorable	900	Idaho fescue		45
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Antelope bitterbrush		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
332:						
Glencabin, south, dry	JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)	Favorable	700	Bluebunch wheatgrass		25
		Normal	500	Idaho fescue		20
		Unfavorable	300	Thurber's needlegrass		15
				Western juniper		15
				Mountain big sagebrush		10
				Bluegrass		8
Glencabin, north, dry	JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)	Favorable	1,100	Idaho fescue		40
		Normal	900	Bluebunch wheatgrass		20
		Unfavorable	700	Mountain big sagebrush		10
				Sandberg bluegrass		5
				Western juniper		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
333:						
Glencabin	JD SHRUBBY MOUNTAIN SOUTH 12-16 PZ (R010XB046OR)	Favorable	1,700	Bluebunch wheatgrass		40
		Normal	1,300	Antelope bitterbrush		15
		Unfavorable	1,000	Idaho fescue		15
				Indian ricegrass		10
				Mountain big sagebrush		5
Rock outcrop.						
334:						
Glencabin	SR MAHOGANY ROCKLAND 12+ PZ (R010XC059OR)	Favorable	1,300	Curl-leaf mountain mahogany		40
		Normal	900	Bluebunch wheatgrass		30
		Unfavorable	600	Antelope bitterbrush		10
				Idaho fescue		10
				Thurber's needlegrass		5
				Western juniper		5
Rock outcrop.						
335:						
Glencabin, gravelly ashy loamy sand surface	SR MAHOGANY ROCKLAND 12+ PZ (R010XC059OR)	Favorable	1,300	Curl-leaf mountain mahogany		40
		Normal	900	Bluebunch wheatgrass		30
		Unfavorable	600	Antelope bitterbrush		10
				Idaho fescue		10
				Thurber's needlegrass		5
				Western juniper		5
Glencabin, ashy loamy sand surface	JUNIPER DRY PINE 14-16 PZ (R021XY508OR)	Favorable	1,200	Idaho fescue		25
		Normal	1,000	Bluebunch wheatgrass		20
		Unfavorable	800	Antelope bitterbrush		10
				Curl-leaf mountain mahogany		5
				Ponderosa pine		5
				Western juniper		5
Wanoga	PINE-MAHOGANY-FESCUE 16-20 PZ (R021XY411OR)	Favorable	1,200	Idaho fescue		35
		Normal	1,000	Antelope bitterbrush		10
		Unfavorable	800	Curl-leaf mountain mahogany		5
				Pacific serviceberry		5
				Ponderosa pine		5
				Ross' sedge		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
336:						
Glencabin	JUNIPER DRY PINE 14-16 PZ (R021XY508OR)	Favorable	1,200	Idaho fescue		25
		Normal	1,000	Bluebunch wheatgrass		20
		Unfavorable	800	Antelope bitterbrush		10
				Curl-leaf mountain mahogany		5
				Ponderosa pine		5
				Western juniper		5
Yapoah	*Pinus ponderosa/Purshia tridentata-Arctostaphylos patula/Festuca idahoensis-pumice* (CPS217)	Favorable	---	Antelope bitterbrush	25	
		Normal	---	Ponderosa pine	25	
		Unfavorable	---	Greenleaf manzanita	15	
				Idaho fescue	15	
				Squawcarpet	15	
				Bottlebrush squirreltail	5	
Rock outcrop.						
338:						
Goodtack	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
339:						
Goodtack, low precipitation	ARID PLAINS 8-11 PZ (R023XY604OR)	Favorable	1,000	Bluebunch wheatgrass		40
		Normal	800	Thurber's needlegrass		20
		Unfavorable	600	Basin big sagebrush		15
				Indian ricegrass		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Western needlegrass		5
				Wyoming big sagebrush		5
340:						
Goodtack	ARID PLAINS 8-11 PZ (R023XY604OR)	Favorable	1,000	Bluebunch wheatgrass		40
		Normal	800	Thurber's needlegrass		20
		Unfavorable	600	Basin big sagebrush		15
				Indian ricegrass		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Western needlegrass		5
				Wyoming big sagebrush		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
340:						
Borobey	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
341:						
Goodtack	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
Borobey	STIPA FESCUE BASIN 8-11 PZ (R023XY670OR)	Favorable	700	Needleandthread		35
		Normal	600	Idaho fescue		25
		Unfavorable	500	Basin big sagebrush		10
				Thurber's needlegrass		5
				Indian ricegrass		5
342:						
Goodtack	JUNIPER PUMICE PLAINS 8-11 PZ (R010XA659OR)	Favorable	800	Idaho fescue		45
		Normal	600	Mountain big sagebrush		10
		Unfavorable	400	Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
Morehouse	FORESTED SANDY LOAM 8-11 PZ (R006XA212OR)	Favorable	700	Needleandthread		35
		Normal	500	Idaho fescue		10
		Unfavorable	300	Indian ricegrass		10
				Western juniper		10
				Beardless wildrye		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Sandberg bluegrass		5
343:						
Goodtack	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber's needlegrass		5
				Western needlegrass		5
Sliptrack	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		Pct	Pct
344:						
Gradon	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
345:						
Greenmountain	DROUGHTY PUMICE 9-12 PZ (R023XY515OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Mountain big sagebrush		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Indian ricegrass		5
				Pine bluegrass		5
				Thurber's needlegrass		5
346:						
Greenmountain	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber's needlegrass		5
Jacksplace	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber's needlegrass		5
347:						
Greenmountain	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
Lastcall	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
348:						
Greenmountain	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber's needlegrass		5
Weglike	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber's needlegrass		5
				Western needlegrass		5
349:						
Hackwood	ASPEN GROVE (R021XY416OR)	Favorable	2,500	Quaking aspen		40
		Normal	2,000	Sedge		15
		Unfavorable	1,500	Mountain snowberry		10
				Needlegrass		10
				Melic		5
				Mountain big sagebrush		5
				Mountain brome		5
Westbutte, north	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
350:						
Hager, cobbly loam surface	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Hager, extremely stony loam surface	THIN SURFACE 8-14 PZ (R024XY021OR)	Favorable	500	Black sagebrush		60
		Normal	400	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		10
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
351:						
Hayespring------------	ARID PLAINS 8-11 PZ (R023XY604OR)	Favorable	1,000	Bluebunch wheatgrass		40
		Normal	800	Thurber's needlegrass		20
		Unfavorable	600	Basin big sagebrush		15
				Indian ricegrass		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Western needlegrass		5
				Wyoming big sagebrush		5
352:						
Hayespring------------	DROUGHTY PUMICE 9-12 PZ (R023XY515OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Mountain big sagebrush		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Thurber's needlegrass		5
Dunres----------------	STONY LOAM 10-12 PZ (R023XY516OR)	Favorable	1,000	Idaho fescue		45
		Normal	800	Antelope bitterbrush		10
		Unfavorable	600	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Thurber's needlegrass		5
				Western juniper		5
353:						
Hayespring------------	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber's needlegrass		5
				Western needlegrass		5
Moonbeam--------------	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
354:						
Hayespring------------	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
354:						
Moonbeam	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
355:						
Hayespring, cobbly ashy loamy sand surface	JUNIPER PUMICE PLAINS 8-11 PZ (R010XA659OR)	Favorable	800	Idaho fescue		45
		Normal	600	Mountain big sagebrush		10
		Unfavorable	400	Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
Moonbeam, cobbly ashy loam surface	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
356:						
Hayespring, low precipitation	DROUGHTY PUMICE 9-12 PZ (R023XY515OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Mountain big sagebrush		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Thurber's needlegrass		5
Moonbeam, low precipitation	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
357:						
Hayespring	STONY LOAM 10-12 PZ (R023XY516OR)	Favorable	1,000	Idaho fescue		45
		Normal	800	Antelope bitterbrush		10
		Unfavorable	600	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Thurber's needlegrass		5
				Western juniper		5
Senra	JD SHRUBBY CLAYPAN 12-16 PZ (R010XB082OR)	Favorable	1,200	Idaho fescue		35
		Normal	900	Bluebunch wheatgrass		25
		Unfavorable	600	Antelope bitterbrush		15
				Low sagebrush		10
				Onespike oatgrass		5
				Sandberg bluegrass		5
358:						
Helphenstein	SODIC FLAT (R024XY001OR)	Favorable	300	Black greasewood		40
		Normal	200	Inland saltgrass		20
		Unfavorable	100	Basin wildrye		10
				Alkali sacaton		5
				Alkaligrass		5
359:						
Helphenstein, frequently ponded	SODIC LAKE TERRACE (R024XY114OR)	Favorable	700	Inland saltgrass		60
		Normal	500	Alkaligrass		20
		Unfavorable	300	Greasewood		15
360:						
Helphenstein	SODIC FLAT (R024XY001OR)	Favorable	300	Black greasewood		40
		Normal	200	Inland saltgrass		20
		Unfavorable	100	Basin wildrye		10
				Alkali sacaton		5
				Alkaligrass		5
361:						
Helphenstein	SODIC FLAT (R024XY001OR)	Favorable	300	Black greasewood		40
		Normal	200	Inland saltgrass		20
		Unfavorable	100	Basin wildrye		10
				Alkali sacaton		5
				Alkaligrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
361:						
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
362:						
Helphenstein, frequently ponded	DRY PONDED BASIN 6-10 PZ (R024XY629OR)	Favorable	500	Spiny hopsage		60
		Normal	400	Bottlebrush squirreltail		10
		Unfavorable	300	Shadscale		10
				Bud sagebrush		5
				Greasewood		5
Legler	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	2,000	Basin big sagebrush		5
Playas.						
363:						
Helphenstein, frequently ponded	SODIC LAKE TERRACE (R024XY114OR)	Favorable	700	Inland saltgrass		60
		Normal	500	Alkaligrass		20
		Unfavorable	300	Greasewood		15
Pitcheranch	BASIN WET MEADOW (R023XY117OR)	Favorable	3,000	Nebraska sedge		50
		Normal	2,000	Baltic rush		30
		Unfavorable	1,500	Spikerush		15
Reese	SODIC MEADOW (R024XY002OR)	Favorable	500	Alkali sacaton		40
		Normal	300	Inland saltgrass		25
		Unfavorable	150	Sandberg bluegrass		25
				Alkali cordgrass		10
364:						
Helphenstein	SODIC FLAT (R024XY001OR)	Favorable	300	Black greasewood		40
		Normal	200	Inland saltgrass		20
		Unfavorable	100	Basin wildrye		10
				Alkali sacaton		5
				Alkaligrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
364:						
Turpin	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
365:						
Henkle	PONDEROSA FESCUE HILLS 12-14 PZ (R006XB211OR)	Favorable	1,250	Idaho fescue		35
		Normal	1,000	Needlegrass		15
		Unfavorable	700	Mountain big sagebrush		10
				Antelope bitterbrush		5
				Ponderosa pine		5
Ludi	JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)	Favorable	700	Bluebunch wheatgrass		25
		Normal	500	Idaho fescue		20
		Unfavorable	300	Thurber’s needlegrass		15
				Western juniper		15
				Mountain big sagebrush		10
				Bluegrass		8
366:						
Henkle	PONDEROSA FESCUE HILLS 12-14 PZ (R006XB211OR)	Favorable	1,250	Idaho fescue		35
		Normal	1,000	Needlegrass		15
		Unfavorable	700	Mountain big sagebrush		10
				Antelope bitterbrush		5
				Ponderosa pine		5
Wanoga	PONDEROSA FESCUE HILLS 12-14 PZ (R006XB211OR)	Favorable	1,250	Idaho fescue		35
		Normal	1,000	Needlegrass		15
		Unfavorable	700	Mountain big sagebrush		10
				Antelope bitterbrush		5
				Ponderosa pine		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
367:						
Henkle, dry	*Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/Festuca idahoensis* (CPS111)	Favorable	---	Mountain mahogany	20	
		Normal	---	Antelope bitterbrush	15	
		Unfavorable	---	Big sagebrush	15	
				Idaho fescue	15	
				Ponderosa pine	15	
				Western juniper	10	
				Bluebunch wheatgrass	3	
Wanoga, dry	*Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/Festuca idahoensis* (CPS111)	Favorable	---	Mountain mahogany	20	
		Normal	---	Antelope bitterbrush	15	
		Unfavorable	---	Big sagebrush	15	
				Idaho fescue	15	
				Ponderosa pine	15	
				Western juniper	10	
				Bluebunch wheatgrass	3	
368:						
Horning	SILTY DUNES (R024XY644OR)	Favorable	900	Beardless wildrye		45
		Normal	700	Black greasewood		30
		Unfavorable	500	Spiny hopsage		5
369:						
Horning	SILTY DUNES (R024XY644OR)	Favorable	900	Beardless wildrye		45
		Normal	700	Black greasewood		30
		Unfavorable	500	Spiny hopsage		5
Tonor	SILTY ALKALINE BOTTOM 8-10 PZ (R024XY645OR)	Favorable	900	Beardless wildrye		30
		Normal	700	Basin big sagebrush		15
		Unfavorable	500	Basin wildrye		15
				Black greasewood		15
				Bottlebrush squirreltail		5
				Rabbitbrush		5
370:						
Icene	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
Playas.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
371:						
Ipsoot	*Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)	Favorable	---	Greenleaf manzanita	25	
		Normal	---	Ponderosa pine	25	
		Unfavorable	---	Antelope bitterbrush	20	
				Western needlegrass	5	
372:						
Ipsoot, north	*Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice* (CWS112)	Favorable	---	Ponderosa pine	25	
		Normal	---	Greenleaf manzanita	15	
		Unfavorable	---	Snowbrush ceanothus	15	
				White fir	15	
				Sugar pine	10	
				Antelope bitterbrush	5	
373:						
Ipsoot, south	*Pinus ponderosa/Purshia tridentata-Ceanothus velutinus/Acnatherum occidentale-pumice* (CPS311)	Favorable	---	Ponderosa pine	30	
		Normal	---	Snowbrush ceanothus	30	
		Unfavorable	---	Antelope bitterbrush	15	
				Greenleaf manzanita	5	
				Western needlegrass	5	
374:						
Jacksplace, moist	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
375:						
Jacksplace	PUMICE PLAINS 8-11 PZ (R023XY607OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Mountain big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
				Western needlegrass		5
376:						
Jacksplace	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
377:						
Jacksplace	STIPA FESCUE PLAINS 8-10 PZ (R023XY666OR)	Favorable	1,100	Needleandthread		40
		Normal	900	Idaho fescue		15
		Unfavorable	700	Mountain big sagebrush		10
378:						
Jacksplace	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
Derallo	JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)	Favorable	700	Bluebunch wheatgrass		25
		Normal	500	Idaho fescue		20
		Unfavorable	300	Thurber's needlegrass		15
				Western juniper		15
				Mountain big sagebrush		10
				Bluegrass		8
Glencabin	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
379:						
Jacksplace	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber's needlegrass		5
Senra	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
380:						
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
382:						
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
Helphenstein, frequently ponded	SODIC LAKE TERRACE (R024XY114OR)	Favorable	700	Inland saltgrass		60
		Normal	500	Alkaligrass		20
		Unfavorable	300	Greasewood		15
383:						
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
Helphenstein, dry	SODIC FLAT (R024XY001OR)	Favorable	300	Black greasewood		40
		Normal	200	Inland saltgrass		20
		Unfavorable	100	Basin wildrye		10
				Alkali sacaton		5
				Alkaligrass		5
384:						
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
Icene	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
385:						
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
Ozamis	SODIC MEADOW (R024XY002OR)	Favorable	500	Alkali sacaton		40
		Normal	300	Inland saltgrass		25
		Unfavorable	150	Sandberg bluegrass		25
				Alkali cordgrass		10
Reese	SODIC MEADOW (R024XY002OR)	Favorable	500	Alkali sacaton		40
		Normal	300	Inland saltgrass		25
		Unfavorable	150	Sandberg bluegrass		25
				Alkali cordgrass		10
386:						
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
Turpin	SODIC TERRACE 6-10 PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		15
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Basin wildrye		10
				Black greasewood		10
				Bottlebrush squirreltail		10
				Spiny hopsage		10
				Bud sagebrush		5
				Shadscale		5
				Wyoming big sagebrush		5
387:						
Kewake, sodic	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
387:						
Turpin, sodic	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
388:						
Krackle, north	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
Krackle, south	SOUTH SLOPES 12-16 PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		45
		Normal	1,100	Idaho fescue		10
		Unfavorable	700	Antelope bitterbrush		5
				Basin big sagebrush		5
				Mountain big sagebrush		5
				Wyoming big sagebrush		5
389:						
Kunceider	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber’s needlegrass		5
390:						
Kunceider	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber’s needlegrass		5
				Western needlegrass		5
Fort Rock	PUMICE PLAINS 8-11 PZ (R023XY607OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Mountain big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Rabbitbrush		5
				Ross’ sedge		5
				Thurber’s needlegrass		5
				Western needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
391:						
Kunceider	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber's needlegrass		5
Rock outcrop.						
392:						
Kunceider	PUMICE 10-12 PZ (R023XY210OR)	Favorable	1,100	Idaho fescue		50
		Normal	900	Antelope bitterbrush		15
		Unfavorable	700	Western needlegrass		15
				Mountain big sagebrush		10
				Ross' sedge		5
				Thurber's needlegrass		5
Wegert	PUMICE FLAT 10-12 PZ (R023XY508OR)	Favorable	600	Needlegrass		40
		Normal	500	Mountain big sagebrush		20
		Unfavorable	400	Ross' sedge		15
393:						
Laidlaw	*Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/Festuca idahoensis* (CPS111)	Favorable	---	Mountain mahogany	20	
		Normal	---	Antelope bitterbrush	15	
		Unfavorable	---	Big sagebrush	15	
				Idaho fescue	15	
				Ponderosa pine	15	
				Western juniper	10	
				Bluebunch wheatgrass	3	
394:						
Laidlaw	*Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/Festuca idahoensis* (CPS111)	Favorable	---	Mountain mahogany	20	
		Normal	---	Antelope bitterbrush	15	
		Unfavorable	---	Big sagebrush	15	
				Idaho fescue	15	
				Ponderosa pine	15	
				Western juniper	10	
				Bluebunch wheatgrass	3	

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
395:						
Laidlaw, dry	*Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/Festuca idahoensis* (CPS111)	Favorable	---	Mountain mahogany	20	
		Normal	---	Antelope bitterbrush	15	
		Unfavorable	---	Big sagebrush	15	
				Idaho fescue	15	
				Ponderosa pine	15	
				Western juniper	10	
				Bluebunch wheatgrass	3	
Wanoga, dry	*Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/Festuca idahoensis* (CPS111)	Favorable	---	Mountain mahogany	20	
		Normal	---	Antelope bitterbrush	15	
		Unfavorable	---	Big sagebrush	15	
				Idaho fescue	15	
				Ponderosa pine	15	
				Western juniper	10	
				Bluebunch wheatgrass	3	
397:						
Lapham	PUMICE PLAINS 8-11 PZ (R023XY607OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Mountain big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
				Western needlegrass		5
398:						
Lapine, north	*Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)	Favorable	---	Greenleaf manzanita	25	
		Normal	---	Ponderosa pine	25	
		Unfavorable	---	Antelope bitterbrush	20	
				Western needlegrass	5	
399:						
Lapine	*Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice* (CPS212)	Favorable	---	Ponderosa pine	25	
		Normal	---	Antelope bitterbrush	20	
		Unfavorable	---	Lodgepole pine	5	
				Western needlegrass	5	
400:						
Lapine	*Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)	Favorable	---	Lodgepole pine	35	
		Normal	---	Antelope bitterbrush	10	
		Unfavorable	---	Western needlegrass	5	
				Squaw currant	3	

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
401:						
Lastcall	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
402:						
Lastcall, gently sloping	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
Lastcall, nearly level	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
403:						
Lastcall	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
Hayespring	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber's needlegrass		5
				Western needlegrass		5
404:						
Lastcall	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
Hayespring	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
405:						
Lastcall	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber’s needlegrass		5
Jacksplace	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber’s needlegrass		5
Embal	SWALE 10-14 PZ (R023XY202OR)	Favorable	2,000	Basin wildrye		35
		Normal	1,800	Basin big sagebrush		20
		Unfavorable	1,500	Bluebunch wheatgrass		15
				Idaho fescue		10
				Thurber’s needlegrass		10
				Western needlegrass		5
407:						
Lastcall	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber’s needlegrass		5
Moonbeam	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber’s needlegrass		5
408:						
Leevan	SHALLOW SOUTH SLOPES 8-12 PZ (R023XY600OR)	Favorable	1,100	Bluebunch wheatgrass		40
		Normal	900	Thurber’s needlegrass		10
		Unfavorable	700	Idaho fescue		5
				Low sagebrush		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
408:						
Fitzwater, south	SOUTH SLOPES 12-16 PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		45
		Normal	1,100	Idaho fescue		10
		Unfavorable	700	Antelope bitterbrush		5
				Basin big sagebrush		5
				Mountain big sagebrush		5
				Wyoming big sagebrush		5
Chen	SHALLOW NORTH 12-16 PZ (R023XY312OR)	Favorable	1,000	Idaho fescue		60
		Normal	700	Low sagebrush		15
		Unfavorable	500	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
409:						
Leevan, north	SHALLOW NORTH 12-16 PZ (R023XY312OR)	Favorable	1,000	Idaho fescue		60
		Normal	700	Low sagebrush		15
		Unfavorable	500	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
Lambring, north	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
Rock outcrop.						
410:						
Legler	DRY LAKE TERRACE 6-10 PZ (R024XY632OR)	Favorable	800	Beardless wildrye		70
		Normal	700	Basin big sagebrush		10
		Unfavorable	500	Black greasewood		5
				Bottlebrush squirreltail		5
411:						
Bridgewell	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Silver sagebrush		20
		Unfavorable	1,000	Beardless wildrye		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Sedge		5
Legler	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	2,000	Basin big sagebrush		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
412:						
Bridgewell	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Silver sagebrush		20
		Unfavorable	1,000	Beardless wildrye		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Sedge		5
Chancelakes	LAKEBED (R023XY100OR)	Favorable	1,600	Spikerush		40
		Normal	1,100	Dock		25
		Unfavorable	700	Baltic rush		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Povertyweed		5
413:						
Lithic Haploxerolls, cool	JUNIPER-PINE LAVALANDS 10-12 PZ (R021XY425OR)	Favorable	750	Mountain big sagebrush		25
		Normal	450	Bluebunch wheatgrass		20
		Unfavorable	250	Idaho fescue		20
				Curl-leaf mountain mahogany		10
				Western juniper		10
				Ponderosa pine		5
Lava flows.						
414:						
Lithic Haploxerolls, dry	FRACTURED LAVA FLOW 8-10 PZ (R023XY672OR)	Favorable	400	Basin big sagebrush		35
		Normal	300	Wax currant		15
		Unfavorable	200	Fernbush		10
				Sandberg bluegrass		10
				Bluebunch wheatgrass		5
Lava flows.						
415:						
Locane	CLAYEY 10-12 PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Thurber’s needlegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Basin wildrye		5
				Cusick’s bluegrass		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
416:						
Locane	CLAYEY 10-12 PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Thurber's needlegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Basin wildrye		5
				Cusick's bluegrass		5
				Sandberg bluegrass		5
Anawalt	CLAYPAN 10-12 PZ (R023XY214OR)	Favorable	700	Bluebunch wheatgrass		50
		Normal	500	Low sagebrush		15
		Unfavorable	300	Sandberg bluegrass		10
				Bottlebrush squirreltail		5
417:						
Locane	CLAYEY 10-12 PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Thurber's needlegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Basin wildrye		5
				Cusick's bluegrass		5
				Sandberg bluegrass		5
Deseed	CLAYEY 10-12 PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Thurber's needlegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Basin wildrye		5
				Cusick's bluegrass		5
				Sandberg bluegrass		5
418:						
Locolake	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
419:						
Locolake	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
419:						
McConnel	SODIC TERRACE 6-10 PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		15
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Basin wildrye		10
				Black greasewood		10
				Bottlebrush squirreltail		10
				Spiny hopsage		10
				Bud sagebrush		5
				Shadscale		5
				Wyoming big sagebrush		5
420:						
Lostforest	PUMICE TERRACE 8-10 PZ (R006XA213OR)	Favorable	700	Thurber's needlegrass		15
		Normal	600	Idaho fescue		10
		Unfavorable	500	Western juniper		10
				Basin big sagebrush		5
				Bluebunch wheatgrass		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Sandberg bluegrass		5
Sandrock	VERY SHALLOW PUMICE TERRACE 8-11 PZ (R006XA217OR)	Favorable	500	Low sagebrush		20
		Normal	300	Thurber's needlegrass		15
		Unfavorable	200	Bluebunch wheatgrass		10
				Sandberg bluegrass		10
				Western juniper		10
				Bottlebrush squirreltail		5
				Indian ricegrass		5
Morehouse	FORESTED SANDY LOAM 8-11 PZ (R006XA212OR)	Favorable	700	Needleandthread		35
		Normal	500	Idaho fescue		10
		Unfavorable	300	Indian ricegrass		10
				Western juniper		10
				Beardless wildrye		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Sandberg bluegrass		5
422:						
Ludi	JD SHRUBBY MOUNTAIN SOUTH 12-16 PZ (R010XB046OR)	Favorable	1,700	Bluebunch wheatgrass		40
		Normal	1,300	Antelope bitterbrush		15
		Unfavorable	1,000	Idaho fescue		15
				Indian ricegrass		10
				Mountain big sagebrush		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
423:						
Ludi, low precipitation, north	PUMICE NORTH SLOPES 10-12 PZ (R023XY613OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,200	Bluebunch wheatgrass		15
		Unfavorable	900	Mountain big sagebrush		10
				Thurber's needlegrass		5
424:						
Ludi, low precipitation, south	JUNIPER PUMICE SOUTH 10-12 PZ (R010XA007OR)	Favorable	900	Bluebunch wheatgrass		60
		Normal	700	Thurber's needlegrass		5
		Unfavorable	500	Antelope bitterbrush		5
				Basin big sagebrush		5
				Goshute big sagebrush		5
				Idaho fescue		5
				Sandberg bluegrass		5
				Western juniper		5
425:						
Ludi, low precipitation, north	JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)	Favorable	1,100	Idaho fescue		40
		Normal	900	Bluebunch wheatgrass		20
		Unfavorable	700	Mountain big sagebrush		10
				Sandberg bluegrass		5
				Western juniper		5
426:						
Ludi, low precipitation, south	JUNIPER PUMICE SOUTH 10-12 PZ (R010XA007OR)	Favorable	900	Bluebunch wheatgrass		60
		Normal	700	Thurber's needlegrass		5
		Unfavorable	500	Antelope bitterbrush		5
				Basin big sagebrush		5
				Goshute big sagebrush		5
				Idaho fescue		5
				Sandberg bluegrass		5
				Western juniper		5
427:						
Ludi------------------	JD SHRUBBY MOUNTAIN NORTH 12-16 PZ (R010XB071OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,600	Antelope bitterbrush		15
		Unfavorable	1,200	Bluebunch wheatgrass		8
				Basin big sagebrush		5
				Common snowberry		5
				Mountain big sagebrush		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
428:						
Ludi, south	SOUTH SLOPES 12-16 PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		45
		Normal	1,100	Idaho fescue		10
		Unfavorable	700	Antelope bitterbrush		5
				Basin big sagebrush		5
				Mountain big sagebrush		5
				Wyoming big sagebrush		5
Glassbutte	SHALLOW NORTH 12-16 PZ (R023XY312OR)	Favorable	1,000	Idaho fescue		60
		Normal	700	Low sagebrush		15
		Unfavorable	500	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
Ludi, north	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
429:						
Ludi	JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)	Favorable	700	Bluebunch wheatgrass		25
		Normal	500	Idaho fescue		20
		Unfavorable	300	Thurber’s needlegrass		15
				Western juniper		15
				Mountain big sagebrush		10
				Bluegrass		8
Glassbutte	SHALLOW NORTH 12-16 PZ (R023XY312OR)	Favorable	1,000	Idaho fescue		60
		Normal	700	Low sagebrush		15
		Unfavorable	500	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
430:						
Lyeflat	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
431:						
Lyeflat	DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)	Favorable	600	Shadscale		40
		Normal	400	Bud sagebrush		15
		Unfavorable	200	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
432:						
Lyeflat, gravelly sandy loam surface	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
Lyeflat, very cobbly sandy loam surface	DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)	Favorable	600	Shadscale		40
		Normal	400	Bud sagebrush		15
		Unfavorable	200	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Rock outcrop.						
433:						
Lyeflat	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
Rock outcrop.						
434:						
McConnel	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber's needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
435:						
McConnel, sodic substratum	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
436:						
McConnel	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber’s needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
437:						
McConnel	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber’s needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
438:						
McConnel	SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)	Favorable	800	Indian ricegrass		20
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	500	Black greasewood		10
Davey	SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)	Favorable	800	Indian ricegrass		20
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	500	Black greasewood		10
439:						
McConnel	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber’s needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
Poorjug, overblown	SANDY LOAM 8-10 PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		15

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
440:						
McConnel	SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)	Favorable	800	Indian ricegrass		20
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	500	Black greasewood		10
Turpin	SODIC TERRACE 6-10 PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		15
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Basin wildrye		10
				Black greasewood		10
				Bottlebrush squirreltail		10
				Spiny hopsage		10
				Bud sagebrush		5
				Shadscale		5
				Wyoming big sagebrush		5
441:						
McNye	SOUTH SLOPES 8-10 PZ (R024XY638OR)	Favorable	1,100	Bluebunch wheatgrass		30
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Wyoming big sagebrush		20
				Basin big sagebrush		5
Wildhill	DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)	Favorable	600	Shadscale		40
		Normal	400	Bud sagebrush		15
		Unfavorable	200	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Rock outcrop.						
442:						
Meld	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
Giranch	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
443:						
Menbo, dry	STONY LOAM 10-12 PZ (R023XY516OR)	Favorable	1,000	Idaho fescue		45
		Normal	800	Antelope bitterbrush		10
		Unfavorable	600	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Thurber’s needlegrass		5
				Western juniper		5
444:						
Merlin	SHALLOW STONY 10-20 PZ (R021XY204OR)	Favorable	300	Sandberg bluegrass		60
		Normal	250	Low sagebrush		10
		Unfavorable	150	Bluebunch wheatgrass		5
				Idaho fescue		5
				Onespike oatgrass		5
				Thurber’s needlegrass		5
445:						
Mesman	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
446:						
Mesman, slightly alkaline	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber’s needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
447:						
Mesman	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
447:						
McConnel	SODIC TERRACE 6-10 PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		15
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Basin wildrye		10
				Black greasewood		10
				Bottlebrush squirreltail		10
				Spiny hopsage		10
				Bud sagebrush		5
				Shadscale		5
				Wyoming big sagebrush		5
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
448:						
Milcan	JUNIPER PUMICE FLAT 8-10 PZ (R010XA027OR)	Favorable	1,000	Needleandthread		40
		Normal	800	Idaho fescue		10
		Unfavorable	600	Mountain big sagebrush		10
				Indian ricegrass		5
				Needlegrass		5
				Thurber's needlegrass		5
				Western juniper		5
449:						
Milcan	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber's needlegrass		5
				Western needlegrass		5
Jacksplace	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber's needlegrass		5
Rock outcrop.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
450:						
Millenium	DRY LAKEBED 10-12 PZ (R023XY512OR)	Favorable	1,200	Idaho fescue		40
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	800	Mountain big sagebrush		10
				Basin wildrye		5
				Indian ricegrass		5
				Sandberg bluegrass		5
451:						
Millenium, basin floor	PUMICE FLAT 10-12 PZ (R023XY508OR)	Favorable	600	Needlegrass		40
		Normal	500	Mountain big sagebrush		20
		Unfavorable	400	Ross' sedge		15
452:						
Millenium	STIPA FESCUE BASIN 8-11 PZ (R023XY670OR)	Favorable	700	Needleandthread		35
		Normal	600	Idaho fescue		25
		Unfavorable	500	Basin big sagebrush		10
				Thurber's needlegrass		5
				Indian ricegrass		5
Stauffer	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
Raztack	SHALLOW SWALE 10-14 PZ (R023XY324OR)	Favorable	900	Nevada bluegrass		35
		Normal	700	Sandberg bluegrass		25
		Unfavorable	500	Low sagebrush		15
				Bottlebrush squirreltail		10
455:						
Moonbeam	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
456:						
Moonbeam	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
457:						
Moonbeam	SHALLOW STONY 10-20 PZ (R021XY204OR)	Favorable	300	Sandberg bluegrass		60
		Normal	250	Low sagebrush		10
		Unfavorable	150	Bluebunch wheatgrass		5
				Idaho fescue		5
				Onespike oatgrass		5
				Thurber's needlegrass		5
458:						
Moonbeam	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
459:						
Moonbeam	CLAYPAN 10-12 PZ (R023XY214OR)	Favorable	700	Bluebunch wheatgrass		50
		Normal	500	Low sagebrush		15
		Unfavorable	300	Sandberg bluegrass		10
				Bottlebrush squirreltail		5
460:						
Moonbeam	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
461:						
Moonbeam	JD SHRUBBY CLAYPAN 12-16 PZ (R010XB082OR)	Favorable	1,200	Idaho fescue		35
		Normal	900	Bluebunch wheatgrass		25
		Unfavorable	600	Antelope bitterbrush		15
				Low sagebrush		10
				Onespike oatgrass		5
				Sandberg bluegrass		5
Connleyhills	STONY LOAM 10-12 PZ (R023XY516OR)	Favorable	1,000	Idaho fescue		45
		Normal	800	Antelope bitterbrush		10
		Unfavorable	600	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Thurber's needlegrass		5
				Western juniper		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
462:						
Moonbeam	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
Goodtack	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
463:						
Moonbeam	JUNIPER CLAYPAN 12-16 PZ (R021XY505OR)	Favorable	1,000	Idaho fescue		35
		Normal	800	Bluebunch wheatgrass		20
		Unfavorable	500	Low sagebrush		10
				Antelope bitterbrush		5
				Sandberg bluegrass		5
				Western juniper		5
Goodtack	PUMICE TERRACE 8-10 PZ (R006XA213OR)	Favorable	700	Thurber's needlegrass		15
		Normal	600	Idaho fescue		10
		Unfavorable	500	Western juniper		10
				Basin big sagebrush		5
				Bluebunch wheatgrass		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Sandberg bluegrass		5
464:						
Moonbeam	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
Hayespring	DROUGHTY PUMICE 9-12 PZ (R023XY515OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Mountain big sagebrush		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
465:						
Moonbeam, moist	JD SHRUBBY CLAYPAN 12-16 PZ (R010XB082OR)	Favorable	1,200	Idaho fescue		35
		Normal	900	Bluebunch wheatgrass		25
		Unfavorable	600	Antelope bitterbrush		15
				Low sagebrush		10
				Onespike oatgrass		5
				Sandberg bluegrass		5
Hayespring, moist	PUMICE 10-12 PZ (R023XY210OR)	Favorable	1,100	Idaho fescue		50
		Normal	900	Antelope bitterbrush		15
		Unfavorable	700	Western needlegrass		15
				Mountain big sagebrush		10
				Ross' sedge		5
				Thurber's needlegrass		5
466:						
Moonbeam	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
Meld	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
467:						
Moonbeam	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
Senra	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
468:						
Moonbeam, gravelly ashy fine sandy loam surface	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
Senra	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
469:						
Moonbeam	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
Senra	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
Hayespring	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber's needlegrass		5
470:						
Morehouse	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
471:						
Morehouse	JUNIPER DUNES 8-10 PZ (R006XA219OR)	Favorable	500	Indian ricegrass		30
		Normal	400	Needleandthread		20
		Unfavorable	300	Basin big sagebrush		10
				Western juniper		10
				Needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
472:						
Morehouse	PUMICE DUNES 8-10 PZ	Favorable	800	Indian ricegrass		35
	(R023XY610OR)	Normal	600	Basin big sagebrush		25
		Unfavorable	500	Beardless wildrye		5
				Rabbitbrush		5
				Small rabbitbrush		5
473:						
Morehouse	JUNIPER SANDY SLOPES 8-11 PZ	Favorable	700	Indian ricegrass		25
	(R006XA218OR)	Normal	600	Needleandthread		25
		Unfavorable	500	Western juniper		15
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Thurber’s needlegrass		5
474:						
Morehouse, ashy fine sand surface	FORESTED SANDY LOAM 8-11 PZ	Favorable	700	Needleandthread		35
	(R006XA212OR)	Normal	500	Idaho fescue		10
		Unfavorable	300	Indian ricegrass		10
				Western juniper		10
				Beardless wildrye		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Sandberg bluegrass		5
Morehouse, ashy sand surface	FORESTED PUMICE DUNES 8-11 PZ	Favorable	600	Indian ricegrass		35
	(R006XA214OR)	Normal	500	Beardless wildrye		10
		Unfavorable	400	Western juniper		10
				Mountain big sagebrush		5
475:						
Morehouse	PUMICE DUNES 8-10 PZ	Favorable	800	Indian ricegrass		35
	(R023XY610OR)	Normal	600	Basin big sagebrush		25
		Unfavorable	500	Beardless wildrye		5
				Rabbitbrush		5
				Small rabbitbrush		5
Playas.						
476:						
Morfitt	DRY PONDED CLAY 6-10 PZ	Favorable	1,000	Beardless wildrye		60
	(R024XY007OR)	Normal	700	Basin big sagebrush		10
		Unfavorable	500	Basin wildrye		10
				Bottlebrush squirreltail		10

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
477:						
Murlose	SHALLOW LOAM 14-18 PZ (R021XY212OR)	Favorable	1,200	Idaho fescue		40
		Normal	900	Antelope bitterbrush		15
		Unfavorable	600	Bluebunch wheatgrass		15
				Basin wildrye		5
				Mountain big sagebrush		5
				Sandberg bluegrass		5
				Thurber’s needlegrass		5
478:						
Murlose	JUNIPER DRY PINE 14-16 PZ (R021XY508OR)	Favorable	1,200	Idaho fescue		25
		Normal	1,000	Bluebunch wheatgrass		20
		Unfavorable	800	Antelope bitterbrush		10
				Curl-leaf mountain mahogany		5
				Ponderosa pine		5
				Western juniper		5
479:						
Ninemile	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber’s needlegrass		7
480:						
Ninemile, low precipitation	CLAYPAN 10-12 PZ (R023XY214OR)	Favorable	700	Bluebunch wheatgrass		50
		Normal	500	Low sagebrush		15
		Unfavorable	300	Sandberg bluegrass		10
				Bottlebrush squirreltail		5
481:						
Ninemile	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber’s needlegrass		7
Arcia	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber’s needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
482:						
Ninemile	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
Carvix	SWALE 10-14 PZ (R023XY202OR)	Favorable	2,000	Basin wildrye		35
		Normal	1,800	Basin big sagebrush		20
		Unfavorable	1,500	Bluebunch wheatgrass		15
				Idaho fescue		10
				Thurber's needlegrass		10
				Western needlegrass		5
483:						
Ninemile	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
Edemaps	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
484:						
Ninemile	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
Reluctan	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
485:						
Ninemile	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
Reluctan	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
Rubble land.						
486:						
Ninemile, north	SHALLOW NORTH 12-16 PZ (R023XY312OR)	Favorable	1,000	Idaho fescue		60
		Normal	700	Low sagebrush		15
		Unfavorable	500	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
Rock outcrop.						
Felcher, south	SOUTH SLOPES 10-12 PZ (R023XY300OR)	Favorable	900	Bluebunch wheatgrass		50
		Normal	700	Thurber's needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
487:						
Ninemile	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
Westbutte	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
488:						
Ninemile--------------	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
Westbutte-------------	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
Ninemile, extremely stony surface--------	JUNIPER TABLELAND 10-14 PZ (R023XY217OR)	Favorable	900	Idaho fescue		40
		Normal	700	Bluebunch wheatgrass		20
		Unfavorable	500	Low sagebrush		10
				Sandberg bluegrass		10
				Thurber's needlegrass		10
				Western juniper		10
489:						
Noidee----------------	HIGH SODIC HILLS 8-11 PZ (R024XY648OR)	Favorable	450	Wyoming big sagebrush		15
		Normal	350	Bluebunch wheatgrass		10
		Unfavorable	250	Bottlebrush squirreltail		10
				Shadscale		10
				Basin big sagebrush		5
				Bud sagebrush		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Thurber's needlegrass		5
490:						
Norcross, extremely cobbly ashy loam surface--------------	SHALLOW STONY 10-20 PZ (R021XY204OR)	Favorable	300	Sandberg bluegrass		60
		Normal	250	Low sagebrush		10
		Unfavorable	150	Bluebunch wheatgrass		5
				Idaho fescue		5
				Onespike oatgrass		5
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
490:						
Norcross, cobbly ashy fine sandy loam surface	JD SHRUBBY CLAYPAN 12-16 PZ	Favorable	1,200	Idaho fescue		35
	(R010XB082OR)	Normal	900	Bluebunch wheatgrass		25
		Unfavorable	600	Antelope bitterbrush		15
				Low sagebrush		10
				Onespike oatgrass		5
				Sandberg bluegrass		5
491:						
Norcross	JUNIPER CLAYPAN 12-16 PZ	Favorable	1,000	Idaho fescue		35
	(R021XY505OR)	Normal	800	Bluebunch wheatgrass		20
		Unfavorable	500	Low sagebrush		10
				Antelope bitterbrush		5
				Sandberg bluegrass		5
				Western juniper		5
492:						
Norcross	SHALLOW STONY 10-20 PZ	Favorable	300	Sandberg bluegrass		60
	(R021XY204OR)	Normal	250	Low sagebrush		10
		Unfavorable	150	Bluebunch wheatgrass		5
				Idaho fescue		5
				Onespike oatgrass		5
				Thurber's needlegrass		5
493:						
Oatmanflat	DRY LAKEBED 10-12 PZ	Favorable	1,200	Idaho fescue		40
	(R023XY512OR)	Normal	1,000	Thurber's needlegrass		15
		Unfavorable	800	Mountain big sagebrush		10
				Basin wildrye		5
				Indian ricegrass		5
				Sandberg bluegrass		5
494:						
Oatmanflat	DRY LAKEBED 10-12 PZ	Favorable	1,200	Idaho fescue		40
	(R023XY512OR)	Normal	1,000	Thurber's needlegrass		15
		Unfavorable	800	Mountain big sagebrush		10
				Basin wildrye		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Borobey	DROUGHTY BOTTOM 6-10 PZ	Favorable	1,700	Basin wildrye		55
	(R024XY609OR)	Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
495:						
Old Camp	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
496:						
Old Camp, south	LOAMY SLOPES 6-10 PZ (R024XY030OR)	Favorable	700	Indian ricegrass		30
		Normal	500	Wyoming big sagebrush		30
		Unfavorable	300	Spiny hopsage		15
				Thurber's needlegrass		10
497:						
Old Camp	SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)	Favorable	800	Indian ricegrass		20
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	500	Black greasewood		10
Felcher, north	ARID NORTH 8-10 PZ (R023XY602OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	600	Thurber's needlegrass		5
		Unfavorable	400	Wyoming big sagebrush		5
Rock outcrop.						
498:						
Osoll	DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)	Favorable	600	Shadscale		40
		Normal	400	Bud sagebrush		15
		Unfavorable	200	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Panlee	SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)	Favorable	800	Indian ricegrass		20
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	500	Black greasewood		10
Rock outcrop.						
499:						
Overallflat	DRY PONDED CLAY 6-10 PZ (R024XY007OR)	Favorable	1,000	Beardless wildrye		60
		Normal	700	Basin big sagebrush		10
		Unfavorable	500	Basin wildrye		10
				Bottlebrush squirreltail		10

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
500:						
Overallflat, pluvial lake	CLAYEY PLAYETTE (R024XY008OR)	Favorable	700	Wyoming big sagebrush		35
		Normal	500	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		15
				Thurber's needlegrass		10
				Indian ricegrass		5
501:						
Overallflat	CLAYEY PLAYETTE (R024XY008OR)	Favorable	700	Wyoming big sagebrush		35
		Normal	500	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		15
				Thurber's needlegrass		10
				Indian ricegrass		5
Morehouse	PUMICE DUNES 8-10 PZ (R023XY610OR)	Favorable	800	Indian ricegrass		35
		Normal	600	Basin big sagebrush		25
		Unfavorable	500	Beardless wildrye		5
				Rabbitbrush		5
				Small rabbitbrush		5
502:						
Overallflat	DRY PONDED CLAY 6-10 PZ (R024XY007OR)	Favorable	1,000	Beardless wildrye		60
		Normal	700	Basin big sagebrush		10
		Unfavorable	500	Basin wildrye		10
				Bottlebrush squirreltail		10
Silverash	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Silver sagebrush		20
		Unfavorable	1,000	Beardless wildrye		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Sedge		5
503:						
Overallflat, hummocky	CLAYEY PLAYETTE (R024XY008OR)	Favorable	700	Wyoming big sagebrush		35
		Normal	500	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		15
				Thurber's needlegrass		10
				Indian ricegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
503:						
Silverash	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Silver sagebrush		20
		Unfavorable	1,000	Beardless wildrye		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Sedge		5
504:						
Ozamis, saline	SODIC MEADOW (R024XY002OR)	Favorable	500	Alkali sacaton		40
		Normal	300	Inland saltgrass		25
		Unfavorable	150	Sandberg bluegrass		25
				Alkali cordgrass		10
505:						
Ozamis	SODIC MEADOW (R024XY002OR)	Favorable	500	Alkali sacaton		40
		Normal	300	Inland saltgrass		25
		Unfavorable	150	Sandberg bluegrass		25
				Alkali cordgrass		10
Reese	SODIC MEADOW (R024XY002OR)	Favorable	500	Alkali sacaton		40
		Normal	300	Inland saltgrass		25
		Unfavorable	150	Sandberg bluegrass		25
				Alkali cordgrass		10
506:						
Pait	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
507:						
Paulina	WET MEADOW 14-40 PZ (R021XY406OR)	Favorable	3,000	Sandberg bluegrass		45
		Normal	2,500	Low sagebrush		20
		Unfavorable	1,500	Longleaf hawksbeard		5
508:						
Paulina, very gravelly substratum	WET MEADOW 14-40 PZ (R021XY406OR)	Favorable	3,000	Sandberg bluegrass		45
		Normal	2,500	Low sagebrush		20
		Unfavorable	1,500	Longleaf hawksbeard		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
509:						
Paulina	WET MEADOW 14-40 PZ (R021XY406OR)	Favorable	3,000	Sandberg bluegrass		45
		Normal	2,500	Low sagebrush		20
		Unfavorable	1,500	Longleaf hawksbeard		5
Chinarise	BASIN HUMMOCK (R021XY316OR)	Favorable	6,000	Basin wildrye		95
		Normal	5,000	Beardless wildrye		3
		Unfavorable	4,000	Slender wheatgrass		2
511:						
Pernty	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
512:						
Pernty	SOUTH SLOPES 12-16 PZ (R023XY302OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	1,000	Mountain big sagebrush		10
		Unfavorable	800	Sandberg bluegrass		5
				Thurber's needlegrass		5
				Western juniper		5
				Idaho fescue		2
Chesebro	JUNIPER PUMICE NORTH 10-14 PZ (R010XA026OR)	Favorable	1,100	Idaho fescue		40
		Normal	900	Bluebunch wheatgrass		20
		Unfavorable	700	Mountain big sagebrush		10
				Sandberg bluegrass		5
				Western juniper		5
Rock outcrop.						
513:						
Pernty	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
Cleavage	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
514:						
Pernty, south	JUNIPER SOUTH SLOPES 12-16 PZ (R023XY320OR)	Favorable	700	Bluebunch wheatgrass		25
		Normal	500	Idaho fescue		20
		Unfavorable	300	Thurber’s needlegrass		15
				Western juniper		15
				Mountain big sagebrush		10
				Bluegrass		8
Glencabin	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
Rock outcrop.						
516:						
Pernty, south	SOUTH SLOPES 12-16 PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		45
		Normal	1,100	Idaho fescue		10
		Unfavorable	700	Antelope bitterbrush		5
				Basin big sagebrush		5
				Mountain big sagebrush		5
				Wyoming big sagebrush		5
Westbutte, north	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
Ninemile	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber’s needlegrass		7
517:						
Picturerock	BASIN DRY MEADOW (R023XY118OR)	Favorable	3,000	Beardless wildrye		90
		Normal	2,000			
		Unfavorable	1,500			

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
518:						
Pitcheranch	WET MARSH (R023XY115OR)	Favorable	6,000	Hardstem bulrush		50
		Normal	4,000	Broadfruit burreed		45
		Unfavorable	3,000	Cattail		5
519:						
Pitcheranch	WET MEADOW 14-40 PZ (R021XY406OR)	Favorable	3,000	Sandberg bluegrass		45
		Normal	2,500	Low sagebrush		20
		Unfavorable	1,500	Longleaf hawksbeard		5
Chinarise	BASIN HUMMOCK (R021XY316OR)	Favorable	6,000	Basin wildrye		95
		Normal	5,000	Beardless wildrye		3
		Unfavorable	4,000	Slender wheatgrass		2
520:						
Playas.						
521:						
Playas, saline.						
522:						
Playas.						
Helphenstein	SODIC FLAT (R024XY001OR)	Favorable	300	Black greasewood		40
		Normal	200	Inland saltgrass		20
		Unfavorable	100	Basin wildrye		10
				Alkali sacaton		5
				Alkaligrass		5
523:						
Poorjug	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Poorjug, overblown	SANDY LOAM 8-10 PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		15

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
524:						
Poorjug	SHALLOW LOAM 8-10 PZ	Favorable	700	Thurber's needlegrass		35
	(R024XY017OR)	Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Rock outcrop.						
525:						
Porterfield	SHALLOW LOAM 8-10 PZ	Favorable	700	Thurber's needlegrass		35
	(R024XY017OR)	Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Rock outcrop.						
526:						
Puzzlebark	JUNIPER-PINE-FESCUE	Favorable	900	Idaho fescue		30
	(R006XB002OR)	Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Antelope bitterbrush		10
				Sandberg bluegrass		10
				Western juniper		10
				Mountain big sagebrush		5
				Ponderosa pine		5
				Ross' sedge		5
Morehouse, moderately steep	FORESTED SHRUBBY DUNES 8-11 PZ	Favorable	600	Indian ricegrass		25
	(R006XA216OR)	Normal	500	Antelope bitterbrush		15
		Unfavorable	400	Needleandthread		10
				Western juniper		10
				Idaho fescue		5
				Ponderosa pine		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
526:						
Morehouse, gently sloping	FORESTED SANDY LOAM 8-11 PZ (R006XA212OR)	Favorable	700	Needleandthread		35
		Normal	500	Idaho fescue		10
		Unfavorable	300	Indian ricegrass		10
				Western juniper		10
				Beardless wildrye		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Sandberg bluegrass		5
527:						
Puzzlebark	JUNIPER-PINE-FESCUE (R006XB002OR)	Favorable	900	Idaho fescue		30
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Antelope bitterbrush		10
				Sandberg bluegrass		10
				Western juniper		10
				Mountain big sagebrush		5
				Ponderosa pine		5
				Ross' sedge		5
Sandrock	VERY SHALLOW PUMICE TERRACE 8-11 PZ (R006XA217OR)	Favorable	500	Low sagebrush		20
		Normal	300	Thurber's needlegrass		15
		Unfavorable	200	Bluebunch wheatgrass		10
				Sandberg bluegrass		10
				Western juniper		10
				Bottlebrush squirreltail		5
				Indian ricegrass		5
528:						
Rabbithills, overblown	SANDY LOAM 8-10 PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		15
Rabbithills	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
529:						
Rabbithills-----------	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Rabbithills, overblown	SANDY LOAM 8-10 PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		15
530:						
Rabbithills-----------	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
531:						
Rabbithills, sodic----	SODIC TERRACE 6-10 PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		15
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Basin wildrye		10
				Black greasewood		10
				Bottlebrush squirreltail		10
				Spiny hopsage		10
				Bud sagebrush		5
				Shadscale		5
				Wyoming big sagebrush		5
532:						
Rabbithills-----------	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
533:						
Rabbithills	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
534:						
Rabbithills	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Helphenstein, frequently ponded	DRY PONDED BASIN 6-10 PZ (R024XY629OR)	Favorable	500	Spiny hopsage		60
		Normal	400	Bottlebrush squirreltail		10
		Unfavorable	300	Shadscale		10
				Bud sagebrush		5
				Greasewood		5
535:						
Ratto	CLAYEY 10-12 PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Thurber's needlegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Basin wildrye		5
				Cusick's bluegrass		5
				Sandberg bluegrass		5
536:						
Raz, overblown	SANDY LOAM 10-12 PZ (R023XY213OR)	Favorable	1,100	Needleandthread		50
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Indian ricegrass		10
				Basin wildrye		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
537:						
Raz	ARID PLAINS 8-11 PZ (R023XY604OR)	Favorable	1,000	Bluebunch wheatgrass		40
		Normal	800	Thurber's needlegrass		20
		Unfavorable	600	Basin big sagebrush		15
				Indian ricegrass		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Western needlegrass		5
				Wyoming big sagebrush		5
Brace	ARID PLAINS 8-11 PZ (R023XY604OR)	Favorable	1,000	Bluebunch wheatgrass		40
		Normal	800	Thurber's needlegrass		20
		Unfavorable	600	Basin big sagebrush		15
				Indian ricegrass		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Western needlegrass		5
				Wyoming big sagebrush		5
538:						
Raz, high precipitation	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Brace, high precipitation	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5
539:						
Raz, low precipitation	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
539:						
Brace, low precipitation	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
540:						
Raz, overblown	SANDY LOAM 10-12 PZ (R023XY213OR)	Favorable	1,100	Needleandthread		50
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Indian ricegrass		10
				Basin wildrye		5
Brace, overblown	SANDY LOAM 10-12 PZ (R023XY213OR)	Favorable	1,100	Needleandthread		50
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Indian ricegrass		10
				Basin wildrye		5
541:						
Raz	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Poorjug	ARID FAN 8-10 PZ (R024XY653OR)	Favorable	600	Indian ricegrass		15
		Normal	400	Thurber's needlegrass		15
		Unfavorable	200	Basin wildrye		10
				Bluebunch wheatgrass		10
				Wyoming big sagebrush		7
				Basin big sagebrush		5
542:						
Raz	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
542:						
Reallis	SANDY LOAM 10-12 PZ (R023XY213OR)	Favorable	1,100	Needleandthread		50
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Indian ricegrass		10
				Basin wildrye		5
543:						
Raztack	SHALLOW SWALE 10-14 PZ (R023XY324OR)	Favorable	900	Nevada bluegrass		35
		Normal	700	Sandberg bluegrass		25
		Unfavorable	500	Low sagebrush		15
				Bottlebrush squirreltail		10
Silverash	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Silver sagebrush		20
		Unfavorable	1,000	Beardless wildrye		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Sedge		5
Embal	SWALE 10-14 PZ (R023XY202OR)	Favorable	2,000	Basin wildrye		35
		Normal	1,800	Basin big sagebrush		20
		Unfavorable	1,500	Bluebunch wheatgrass		15
				Idaho fescue		10
				Thurber's needlegrass		10
				Western needlegrass		5
544:						
Reallis	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5
545:						
Reallis	SANDY LOAM 10-12 PZ (R023XY213OR)	Favorable	1,100	Needleandthread		50
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Indian ricegrass		10
				Basin wildrye		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
546:						
Reallis, sandy loam surface	SANDY LOAM 10-12 PZ (R023XY213OR)	Favorable	1,100	Needleandthread		50
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Indian ricegrass		10
				Basin wildrye		5
Reallis, fine sandy loam surface	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
547:						
Reallis	DROUGHTY BOTTOM 6-10 PZ (R024XY609OR)	Favorable	1,700	Basin wildrye		55
		Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
Yankeewell	HIGH SODIC HILLS 8-11 PZ (R024XY648OR)	Favorable	450	Wyoming big sagebrush		15
		Normal	350	Bluebunch wheatgrass		10
		Unfavorable	250	Bottlebrush squirreltail		10
				Shadscale		10
				Basin big sagebrush		5
				Bud sagebrush		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Thurber's needlegrass		5
548:						
Redcanyon, north	NORTH SLOPE 10-14 PZ (R021XY302OR)	Favorable	1,300	Bluebunch wheatgrass		50
		Normal	900	Idaho fescue		15
		Unfavorable	600	Basin big sagebrush		10
				Antelope bitterbrush		5
				Lupine		5
Rock outcrop.						
549:						
Redcanyon, south	JUNIPER SOUTH 12-16 PZ (R021XY301OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	800	Antelope bitterbrush		10
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Basin big sagebrush		5
				Idaho fescue		5
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
549:						
Rock outcrop.						
550:						
Redcliff, south-------	JUNIPER PUMICE SOUTH 10-12 PZ (R010XA007OR)	Favorable	900	Bluebunch wheatgrass		60
		Normal	700	Basin big sagebrush		10
		Unfavorable	500	Antelope bitterbrush		5
				Sandberg bluegrass		5
				Western juniper		5
				Thurber’s needlegrass		3
				Idaho fescue		2
Rock outcrop.						
551:						
Reese-----------------	SODIC MEADOW (R024XY002OR)	Favorable	500	Alkali sacaton		40
		Normal	300	Inland saltgrass		25
		Unfavorable	150	Sandberg bluegrass		25
				Alkali cordgrass		10
Ozamis----------------	SODIC MEADOW (R024XY002OR)	Favorable	500	Alkali sacaton		40
		Normal	300	Inland saltgrass		25
		Unfavorable	150	Sandberg bluegrass		25
				Alkali cordgrass		10
552:						
Reluctan--------------	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber’s needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
553:						
Reluctan--------------	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber’s needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
553:						
Arness	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
554:						
Riddleranch, north	ARID NORTH 8-10 PZ (R023XY602OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	600	Thurber's needlegrass		5
		Unfavorable	400	Wyoming big sagebrush		5
555:						
Riddleranch, north	NORTH SLOPES 10-12 PZ (R023XY308OR)	Favorable	1,300	Idaho fescue		50
		Normal	1,000	Bluebunch wheatgrass		15
		Unfavorable	700	Cusick's bluegrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
556:						
Riddleranch, south	DROUGHTY SOUTH SLOPES 11-13 PZ (R023XY301OR)	Favorable	1,000	Bluebunch wheatgrass		25
		Normal	800	Idaho fescue		20
		Unfavorable	500	Thurber needlegrass		15
				Western juniper		15
				Mountain big sagebrush		10
				Cusick's bluegrass		8
Lambring, north	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
Rock outcrop.						
557:						
Rinconflat	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
558:						
Rock outcrop.						
Rubble land.						
559:						
Rock outcrop.						
Blackhills------------	JUNIPER PUMICE SOUTH 10-12 PZ	Favorable	900	Bluebunch wheatgrass		60
	(R010XA007OR)	Normal	700	Basin big sagebrush		10
		Unfavorable	500	Antelope bitterbrush		5
				Sandberg bluegrass		5
				Western juniper		5
				Thurber’s needlegrass		3
				Idaho fescue		2
560:						
Rock outcrop.						
Blackhills------------	JUNIPER PUMICE SOUTH 10-12 PZ	Favorable	900	Bluebunch wheatgrass		60
	(R010XA007OR)	Normal	700	Basin big sagebrush		10
		Unfavorable	500	Antelope bitterbrush		5
				Sandberg bluegrass		5
				Western juniper		5
				Thurber’s needlegrass		3
				Idaho fescue		2
Glencabin, north------	JUNIPER PUMICE NORTH 10-14 PZ	Favorable	1,100	Idaho fescue		40
	(R010XA026OR)	Normal	900	Bluebunch wheatgrass		20
		Unfavorable	700	Mountain big sagebrush		10
				Sandberg bluegrass		5
				Western juniper		5
561:						
Rock outcrop.						
Felcher, south--------	SOUTH SLOPES 10-12 PZ	Favorable	900	Bluebunch wheatgrass		50
	(R023XY300OR)	Normal	700	Thurber’s needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
562:						
Rock outcrop.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
562:						
Shukash	*Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice* (CWS112)	Favorable	---	Ponderosa pine	25	
		Normal	---	Greenleaf manzanita	15	
		Unfavorable	---	Snowbrush ceanothus	15	
				White fir	15	
				Sugar pine	10	
				Antelope bitterbrush	5	
563:						
Rock outcrop.						
Xeric Haplocambids	SODIC SOUTH SLOPES 8-10 PZ (R024XY634OR)	Favorable	800	Indian ricegrass		20
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	500	Black greasewood		10
564:						
Rock outcrop.						
Xeric Haplocambids, south	SOUTH SLOPES 10-12 PZ (R023XY300OR)	Favorable	900	Bluebunch wheatgrass		50
		Normal	700	Thurber's needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Rubble land.						
565:						
Rock outcrop.						
Xerolls, south	SOUTH SLOPES 10-12 PZ (R023XY300OR)	Favorable	900	Bluebunch wheatgrass		50
		Normal	700	Thurber's needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
566:						
Royst	MAHOGANY ROCKLAND 10-20 PZ (R021XY403OR)	Favorable	1,200	Idaho fescue		40
		Normal	1,000	Antelope bitterbrush		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Curl-leaf mountain mahogany		10
				Ponderosa pine		5
				Western juniper		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
567:						
Royst	ROCKY RIDGES 12-16 PZ (R023XY408OR)	Favorable	800	Idaho fescue		30
		Normal	600	Curl-leaf mountain mahogany		15
		Unfavorable	400	Cusick's bluegrass		10
				Common snowberry		5
				Mountain big sagebrush		5
				Western needlegrass		5
Ninemile	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
568:						
Royst	DEEP LOAMY 16-20 PZ (R021XY410OR)	Favorable	2,000	Bluebunch wheatgrass		30
		Normal	1,500	Basin wildrye		20
		Unfavorable	900	Antelope bitterbrush		10
				Idaho fescue		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
Nuss	MAHOGANY ROCKLAND 10-20 PZ (R021XY403OR)	Favorable	1,200	Idaho fescue		40
		Normal	1,000	Antelope bitterbrush		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Curl-leaf mountain mahogany		10
				Ponderosa pine		5
				Western juniper		5
569:						
Sagehen	THIN SURFACE CLAYPAN 10-16 PZ (R023XY218OR)	Favorable	300	Sandberg bluegrass		45
		Normal	200	Low sagebrush		20
		Unfavorable	100	Longleaf hawksbeard		5
570:						
Sagehen	THIN SURFACE 8-14 PZ (R024XY021OR)	Favorable	500	Black sagebrush		60
		Normal	400	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		10
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
570:						
Raz	LOAMY 10-12 PZ (R023XY212OR)	Favorable	800	Thurber's needlegrass		30
		Normal	600	Bluebunch wheatgrass		25
		Unfavorable	400	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
				Indian ricegrass		5
				Sandberg bluegrass		5
571:						
Salhouse	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
572:						
Salhouse, strongly alkaline	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
573:						
Salhouse	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
Tonor	SILTY ALKALINE BOTTOM 8-10 PZ (R024XY645OR)	Favorable	900	Beardless wildrye		30
		Normal	700	Basin big sagebrush		15
		Unfavorable	500	Basin wildrye		15
				Black greasewood		15
				Bottlebrush squirreltail		5
				Rabbitbrush		5
574:						
Seharney	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		Pct	Pct
575:						
Seharney	SHALLOW LOAM 8-10 PZ	Favorable	700	Thurber's needlegrass		35
	(R024XY017OR)	Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Rabbithills	SHALLOW LOAM 8-10 PZ	Favorable	700	Thurber's needlegrass		35
	(R024XY017OR)	Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Enko	DROUGHTY BOTTOM 6-10 PZ	Favorable	1,700	Basin wildrye		55
	(R024XY609OR)	Normal	1,500	Basin big sagebrush		10
		Unfavorable	700			
576:						
Senra	JUNIPER LAVA BENCHES 9-12 PZ	Favorable	1,000	Idaho fescue		50
	(R023XY511OR)	Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
577:						
Senra	PUMICE CLAYPAN 10-12 PZ	Favorable	900	Idaho fescue		65
	(R023XY211OR)	Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
578:						
Senra	PUMICE CLAYPAN 10-12 PZ	Favorable	900	Idaho fescue		65
	(R023XY211OR)	Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
Borobey	SWALE 10-14 PZ (R023XY202OR)	Favorable	2,000	Basin wildrye		35
		Normal	1,800	Basin big sagebrush		20
		Unfavorable	1,500	Bluebunch wheatgrass		15
				Idaho fescue		10
				Thurber's needlegrass		10
				Western needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
579:						
Senra	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
Dunres	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber's needlegrass		5
580:						
Senra	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
Goodtack	JUNIPER PUMICE PLAINS 8-11 PZ (R010XA659OR)	Favorable	800	Idaho fescue		45
		Normal	600	Mountain big sagebrush		10
		Unfavorable	400	Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
581:						
Senra	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
Goodtack	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
582:						
Senra	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5
Goodtack	ARID PLAINS 8-11 PZ (R023XY604OR)	Favorable	1,000	Bluebunch wheatgrass		40
		Normal	800	Thurber's needlegrass		20
		Unfavorable	600	Basin big sagebrush		15
				Indian ricegrass		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Western needlegrass		5
				Wyoming big sagebrush		5
Suckerflat	ARID PLAINS 8-11 PZ (R023XY604OR)	Favorable	1,000	Bluebunch wheatgrass		40
		Normal	800	Thurber's needlegrass		20
		Unfavorable	600	Basin big sagebrush		15
				Indian ricegrass		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Western needlegrass		5
				Wyoming big sagebrush		5
583:						
Senra	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
Hayespring	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber's needlegrass		5
				Western needlegrass		5
584:						
Senra, droughty	JUNIPER LAVA BENCHES 9-12 PZ (R023XY511OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Low sagebrush		15
		Unfavorable	600	Sandberg bluegrass		10
				Western juniper		10
				Bluebunch wheatgrass		5
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
584:						
Hayespring, droughty	JUNIPER PUMICE HILLS 8-11 PZ (R010XA673OR)	Favorable	800	Idaho fescue		35
		Normal	600	Bluebunch wheatgrass		15
		Unfavorable	400	Basin big sagebrush		10
				Western juniper		10
				Thurber's needlegrass		5
585:						
Senra	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
Moonbeam	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
586:						
Shanahan	*Pinus contorta/Ribes cereum-Purshia tridentata/Acnatherum occidentale ssp. occidentale-pumice* (CLS215)	Favorable	---	Lodgepole pine	25	
		Normal	---	Squaw currant	25	
		Unfavorable	---	Antelope bitterbrush	10	
				Western needlegrass	5	
587:						
Shanahan, low landscape position	*Pinus contorta/Acnatherum occidentale ssp. occidentale-basin, pumice* (CLG311)	Favorable	---	Lodgepole pine	35	
		Normal	---	Antelope bitterbrush	10	
		Unfavorable	---	Western needlegrass	5	
588:						
Shanahan, north	*Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)	Favorable	---	Lodgepole pine	35	
		Normal	---	Antelope bitterbrush	10	
		Unfavorable	---	Western needlegrass	5	
				Squaw currant	3	
Shukash	*Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice* (CPS212)	Favorable	---	Ponderosa pine	25	
		Normal	---	Antelope bitterbrush	20	
		Unfavorable	---	Lodgepole pine	5	
				Western needlegrass	5	

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
589:						
Shukash	*Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice* (CPS212)	Favorable	---	Ponderosa pine	25	
		Normal	---	Antelope bitterbrush	20	
		Unfavorable	---	Lodgepole pine	5	
				Western needlegrass	5	
590:						
Shukash, cool	*Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)	Favorable	---	Lodgepole pine	35	
		Normal	---	Antelope bitterbrush	10	
		Unfavorable	---	Western needlegrass	5	
				Squaw currant	3	
591:						
Shukash, north	*Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice* (CWS112)	Favorable	---	Ponderosa pine	25	
		Normal	---	Greenleaf manzanita	15	
		Unfavorable	---	Snowbrush ceanothus	15	
				White fir	15	
				Sugar pine	10	
				Antelope bitterbrush	5	
Rock outcrop.						
592:						
Shukash, south	*Pinus ponderosa/Purshia tridentata-Ceanothus velutinus/Acnatherum occidentale-pumice* (CPS311)	Favorable	---	Ponderosa pine	30	
		Normal	---	Snowbrush ceanothus	30	
		Unfavorable	---	Antelope bitterbrush	15	
				Greenleaf manzanita	5	
				Western needlegrass	5	
Rock outcrop.						
593:						
Shukash	*Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice* (CPS212)	Favorable	---	Ponderosa pine	25	
		Normal	---	Antelope bitterbrush	20	
		Unfavorable	---	Lodgepole pine	5	
				Western needlegrass	5	
Rock outcrop.						
594:						
Shukash	*Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice* (CWS112)	Favorable	---	Ponderosa pine	25	
		Normal	---	Greenleaf manzanita	15	
		Unfavorable	---	Snowbrush ceanothus	15	
				White fir	15	
				Sugar pine	10	
				Antelope bitterbrush	5	

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
594:						
Rock outcrop.						
595:						
Shukash	*Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)	Favorable	---	Greenleaf manzanita	25	
		Normal	---	Ponderosa pine	25	
		Unfavorable	---	Antelope bitterbrush	20	
				Western needlegrass	5	
Rock outcrop.						
596:						
Shukash	*Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)	Favorable	---	Lodgepole pine	35	
		Normal	---	Antelope bitterbrush	10	
		Unfavorable	---	Western needlegrass	5	
				Squaw currant	3	
Shanahan	*Pinus contorta/Artemisia tridentata/Festuca idahoensis-pumice* (CLS111)	Favorable	---	Big sagebrush	15	
		Normal	---	Idaho fescue	15	
		Unfavorable	---	Lodgepole pine	10	
597:						
Shukash	*Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)	Favorable	---	Lodgepole pine	35	
		Normal	---	Antelope bitterbrush	10	
		Unfavorable	---	Western needlegrass	5	
				Squaw currant	3	
Wanoga	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
Rock outcrop.						
598:						
Sisters	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
598:						
Wanoga	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
599:						
Sliptrack	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
Moonbeam	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
600:						
Sliptrack	PUMICE CLAYPAN 10-12 PZ (R023XY211OR)	Favorable	900	Idaho fescue		65
		Normal	700	Low sagebrush		10
		Unfavorable	500	Thurber's needlegrass		10
				Western needlegrass		5
Oatmanflat	DRY LAKEBED 10-12 PZ (R023XY512OR)	Favorable	1,200	Idaho fescue		40
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	800	Mountain big sagebrush		10
				Basin wildrye		5
				Indian ricegrass		5
				Sandberg bluegrass		5
601:						
Snakepit	SANDY LOAM 10-12 PZ (R023XY213OR)	Favorable	1,100	Needleandthread		50
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Indian ricegrass		10
				Basin wildrye		5
602:						
Southcat	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
603:						
Southcat	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
604:						
Southcat	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
Playas.						
605:						
Spiderhole, very cobbly loamy sand surface	SANDY LOAM 10-12 PZ (R023XY213OR)	Favorable	1,100	Needleandthread		50
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Indian ricegrass		10
				Basin wildrye		5
Spiderhole, very gravelly loamy sand surface	SHALLOW LOAM 8-10 PZ (R024XY017OR)	Favorable	700	Thurber's needlegrass		35
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Indian ricegrass		15
				Wyoming big sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
606:						
Stampede	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
607:						
Steiger	*Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice* (CPS212)	Favorable	---	Ponderosa pine	25	
		Normal	---	Antelope bitterbrush	20	
		Unfavorable	---	Lodgepole pine	5	
				Western needlegrass	5	
608:						
Steiger, cool	*Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)	Favorable	---	Lodgepole pine	35	
		Normal	---	Antelope bitterbrush	10	
		Unfavorable	---	Western needlegrass	5	
				Squaw currant	3	
609:						
Steiger	*Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)	Favorable	---	Greenleaf manzanita	25	
		Normal	---	Ponderosa pine	25	
		Unfavorable	---	Antelope bitterbrush	20	
				Western needlegrass	5	
610:						
Steiger, north	*Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice* (CWS112)	Favorable	---	Ponderosa pine	25	
		Normal	---	Greenleaf manzanita	15	
		Unfavorable	---	Snowbrush ceanothus	15	
				White fir	15	
				Sugar pine	10	
				Antelope bitterbrush	5	
Rock outcrop.						
611:						
Steiger, south	*Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)	Favorable	---	Greenleaf manzanita	25	
		Normal	---	Ponderosa pine	25	
		Unfavorable	---	Antelope bitterbrush	20	
				Western needlegrass	5	
Rock outcrop.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
612:						
Suckerflat	STONY LOAM 10-12 PZ	Favorable	1,000	Idaho fescue		45
	(R023XY516OR)	Normal	800	Antelope bitterbrush		10
		Unfavorable	600	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Thurber’s needlegrass		5
				Western juniper		5
613:						
Suckerflat	DROUGHTY PUMICE PLAINS 8-11 PZ	Favorable	1,200	Needleandthread		50
	(R023XY608OR)	Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross’ sedge		5
				Thurber’s needlegrass		5
614:						
Suckerflat	ARID PLAINS 8-11 PZ	Favorable	1,000	Bluebunch wheatgrass		40
	(R023XY604OR)	Normal	800	Thurber’s needlegrass		20
		Unfavorable	600	Basin big sagebrush		15
				Indian ricegrass		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Western needlegrass		5
				Wyoming big sagebrush		5
615:						
Suckerflat, north	JUNIPER PUMICE NORTH 10-14 PZ	Favorable	1,100	Idaho fescue		40
	(R010XA026OR)	Normal	900	Bluebunch wheatgrass		20
		Unfavorable	700	Mountain big sagebrush		10
				Sandberg bluegrass		5
				Western juniper		5
Rock outcrop.						
616:						
Suckerflat, south	SOUTH SLOPES 10-12 PZ	Favorable	900	Bluebunch wheatgrass		50
	(R023XY300OR)	Normal	700	Thurber’s needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Rock outcrop.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
617:						
Suckerflat	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross’ sedge		5
				Thurber’s needlegrass		5
Rock outcrop.						
618:						
Suckerflat	ARID PLAINS 8-11 PZ (R023XY604OR)	Favorable	1,000	Bluebunch wheatgrass		40
		Normal	800	Thurber’s needlegrass		20
		Unfavorable	600	Basin big sagebrush		15
				Indian ricegrass		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Western needlegrass		5
				Wyoming big sagebrush		5
Weglike	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross’ sedge		5
				Thurber’s needlegrass		5
619:						
Silverash	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Silver sagebrush		20
		Unfavorable	1,000	Beardless wildrye		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Sedge		5
620:						
Swalesilver	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Silver sagebrush		20
		Unfavorable	1,000	Beardless wildrye		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Sedge		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
621:						
Swalesilver-----------	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Silver sagebrush		20
		Unfavorable	1,000	Beardless wildrye		15
				Mat muhly		10
				Bottlebrush squirreltail		5
				Sedge		5
622:						
Teguro----------------	DROUGHTY LOAM 11-13 PZ (R023XY316OR)	Favorable	1,100	Idaho fescue		35
		Normal	900	Thurber's needlegrass		25
		Unfavorable	700	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Mountain big sagebrush		5
				Sandberg bluegrass		5
623:						
Teguro----------------	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
624:						
Thompsoncabin, extremely bouldery---	DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)	Favorable	600	Shadscale		40
		Normal	400	Bud sagebrush		15
		Unfavorable	200	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Thompsoncabin---------	STONY ALKALINE SLOPES 6-10 PZ (R024XY640OR)	Favorable	700	Greasewood		35
		Normal	500	Indian ricegrass		20
		Unfavorable	400	Littleleaf horsebrush		10
				Needleandthread		10
				Shadscale		10
				Sand dropseed		5
Rock outcrop.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
625:						
Thompsoncabin	DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)	Favorable	600	Shadscale		40
		Normal	400	Bud sagebrush		15
		Unfavorable	200	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Wildhill	DROUGHTY SHALLOW SLOPES 6-10 PZ (R024XY031OR)	Favorable	600	Shadscale		40
		Normal	400	Bud sagebrush		15
		Unfavorable	200	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
626:						
Thornlake	ALKALINE BASIN 8-10 PZ (R024XY625OR)	Favorable	500	Black greasewood		30
		Normal	300	Basin big sagebrush		15
		Unfavorable	200	Basin wildrye		15
				Inland saltgrass		10
				Bottlebrush squirreltail		5
				Shadscale		5
				Spiny hopsage		5
627:						
Thornlake, nonsodic surface	DRY BASIN (R024XY009OR)	Favorable	1,800	Basin wildrye		50
		Normal	1,500	Basin big sagebrush		15
		Unfavorable	1,000	Beardless wildrye		15
				Black greasewood		10
				Inland saltgrass		5
				Needleandthread		5
628:						
Thornlake, strongly alkaline	ALKALINE BASIN 8-10 PZ (R024XY625OR)	Favorable	500	Black greasewood		30
		Normal	300	Basin big sagebrush		15
		Unfavorable	200	Basin wildrye		15
				Inland saltgrass		10
				Bottlebrush squirreltail		5
				Shadscale		5
				Spiny hopsage		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
628:						
Thornlake, moderately alkaline	DRY BASIN (R024XY009OR)	Favorable	1,800	Basin wildrye		50
		Normal	1,500	Basin big sagebrush		15
		Unfavorable	1,000	Beardless wildrye		15
				Black greasewood		10
				Inland saltgrass		5
				Needleandthread		5
629:						
Thornlake	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
Catlow	SODIC TERRACE 6-10 PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		15
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Basin wildrye		10
				Black greasewood		10
				Bottlebrush squirreltail		10
				Spiny hopsage		10
				Bud sagebrush		5
				Shadscale		5
				Wyoming big sagebrush		5
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
630:						
Thornlake	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
631:						
Thornlake	DRY BASIN (R024XY009OR)	Favorable	1,800	Basin wildrye		50
		Normal	1,500	Basin big sagebrush		15
		Unfavorable	1,000	Beardless wildrye		15
				Black greasewood		10
				Inland saltgrass		5
				Needleandthread		5
Morehouse	PUMICE DUNES 8-10 PZ (R023XY610OR)	Favorable	800	Indian ricegrass		35
		Normal	600	Basin big sagebrush		25
		Unfavorable	500	Beardless wildrye		5
				Rabbitbrush		5
				Small rabbitbrush		5
632:						
Thornlake	ALKALINE BASIN 8-10 PZ (R024XY625OR)	Favorable	500	Black greasewood		30
		Normal	300	Basin big sagebrush		15
		Unfavorable	200	Basin wildrye		15
				Inland saltgrass		10
				Bottlebrush squirreltail		5
				Shadscale		5
				Spiny hopsage		5
Salhouse	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
633:						
Thornlake, dunes	DRY BASIN (R024XY009OR)	Favorable	1,800	Basin wildrye		50
		Normal	1,500	Basin big sagebrush		15
		Unfavorable	1,000	Beardless wildrye		15
				Black greasewood		10
				Inland saltgrass		5
				Needleandthread		5
Salhouse, dunes	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
634:						
Thornlake	ALKALINE BASIN 8-10 PZ (R024XY625OR)	Favorable	500	Black greasewood		30
		Normal	300	Basin big sagebrush		15
		Unfavorable	200	Basin wildrye		15
				Inland saltgrass		10
				Bottlebrush squirreltail		5
				Shadscale		5
				Spiny hopsage		5
Salhouse	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
Fossilake	SODIC LAKE TERRACE (R024XY114OR)	Favorable	700	Inland saltgrass		60
		Normal	500	Alkaligrass		20
		Unfavorable	300	Greasewood		15
635:						
Teguro	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
Carryback	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
636:						
Toll	DUNES (R024XY110OR)	Favorable	800	Needleandthread		30
		Normal	500	Indian ricegrass		20
		Unfavorable	300	Basin big sagebrush		15
				Basin wildrye		15
				Beardless wildrye		10
				Antelope bitterbrush		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
637:						
Toll	DUNES (R024XY110OR)	Favorable	800	Needleandthread		30
		Normal	500	Indian ricegrass		20
		Unfavorable	300	Basin big sagebrush		15
				Basin wildrye		15
				Beardless wildrye		10
				Antelope bitterbrush		5
Nevador	SANDY LOAM 8-10 PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		15
638:						
Tonor	SILTY ALKALINE BOTTOM 8-10 PZ (R024XY645OR)	Favorable	900	Beardless wildrye		30
		Normal	700	Basin big sagebrush		15
		Unfavorable	500	Basin wildrye		15
				Black greasewood		15
				Bottlebrush squirreltail		5
				Rabbitbrush		5
639:						
Tuffcabin	BEACH RIDGE 8-10 PZ (R021XY106OR)	Favorable	900	Beardless wildrye		60
		Normal	700	Black greasewood		30
		Unfavorable	500	Basin wildrye		5
				Inland saltgrass		2
640:						
Turpin	SODIC TERRACE 6-10 PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		15
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Basin wildrye		10
				Black greasewood		10
				Bottlebrush squirreltail		10
				Spiny hopsage		10
				Bud sagebrush		5
				Shadscale		5
				Wyoming big sagebrush		5
641:						
Turpin	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production: Kind of year	Total production: Dry Weight	Characteristic vegetation	Composition: Forest	Composition: Range
			Lb/acre		*Pct*	*Pct*
642:						
Turpin	SILTY LOW SODIC TERRACE 6-10 PZ (R024XY120OR)	Favorable	500	Beardless wildrye		30
		Normal	400	Black greasewood		25
		Unfavorable	300	Shadscale		15
				Spiny hopsage		15
Boravall	LAKE TERRACE (R024XY006OR)	Favorable	900	Beardless wildrye		95
		Normal	700	Povertyweed		2
		Unfavorable	500			
Playas		Favorable	---			
		Normal	---			
		Unfavorable	---			
643:						
Turpin	SODIC TERRACE 6-10 PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		15
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Basin wildrye		10
				Black greasewood		10
				Bottlebrush squirreltail		10
				Spiny hopsage		10
				Bud sagebrush		5
				Shadscale		5
				Wyoming big sagebrush		5
Kewake	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Greasewood		10
				Needleandthread		10
Playas.						
644:						
Turpin	SILTY SODIC TERRACE 6-10 PZ (R024XY121OR)	Favorable	700	Beardless wildrye		35
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Black greasewood		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
				Shadscale		5
Playas.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
645:						
Turpin, saline	SODIC TERRACE 6-10 PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		15
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Basin wildrye		10
				Black greasewood		10
				Bottlebrush squirreltail		10
				Spiny hopsage		10
				Bud sagebrush		5
				Shadscale		5
				Wyoming big sagebrush		5
Playas, saline.						
646:						
Turpin, sodic	SILTY LOW SODIC TERRACE 6-10 PZ (R024XY120OR)	Favorable	500	Beardless wildrye		30
		Normal	400	Black greasewood		25
		Unfavorable	300	Shadscale		15
				Spiny hopsage		15
Playas, sodic.						
647:						
Turpin	SODIC TERRACE 6-10 PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		15
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Basin wildrye		10
				Black greasewood		10
				Bottlebrush squirreltail		10
				Spiny hopsage		10
				Bud sagebrush		5
				Shadscale		5
				Wyoming big sagebrush		5
Rabbitcreek	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5
648:						
Turpin	LOW SODIC TERRACE 6-10 PZ (R024XY013OR)	Favorable	600	Black greasewood		25
		Normal	500	Bud sagebrush		15
		Unfavorable	400	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		10
				Basin wildrye		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
648:						
Reese	SODIC MEADOW (R024XY002OR)	Favorable	500	Alkali sacaton		40
		Normal	300	Inland saltgrass		25
		Unfavorable	150	Sandberg bluegrass		25
				Alkali cordgrass		10
649:						
Turpin	DRY BASIN (R024XY009OR)	Favorable	1,800	Basin wildrye		50
		Normal	1,500	Basin big sagebrush		15
		Unfavorable	1,000	Beardless wildrye		15
				Black greasewood		10
				Inland saltgrass		5
				Needleandthread		5
Turpin, overblown	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Black greasewood		10
				Needleandthread		10
650:						
Vitale	LOAMY 12-16 PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber's needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Basin big sagebrush		5
				Sandberg bluegrass		5
651:						
Wagontire	CLAYPAN 10-12 PZ (R023XY214OR)	Favorable	700	Bluebunch wheatgrass		50
		Normal	500	Low sagebrush		15
		Unfavorable	300	Sandberg bluegrass		10
				Bottlebrush squirreltail		5
652:						
Wanoga, south	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
653:						
Wanoga, south	*Pinus ponderosa/Purshia tridentata-Arctostaphylos patula/Festuca idahoensis-pumice* (CPS217)	Favorable	---	Antelope bitterbrush	25	
		Normal	---	Ponderosa pine	25	
		Unfavorable	---	Greenleaf manzanita	15	
				Idaho fescue	15	
				Squawcarpet	15	
				Bottlebrush squirreltail	5	
654:						
Wanoga	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
Henkle	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
655:						
Wanoga	*Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)	Favorable	---	Greenleaf manzanita	25	
		Normal	---	Ponderosa pine	25	
		Unfavorable	---	Antelope bitterbrush	20	
				Western needlegrass	5	
Henkle, cool	*Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)	Favorable	---	Greenleaf manzanita	25	
		Normal	---	Ponderosa pine	25	
		Unfavorable	---	Antelope bitterbrush	20	
				Western needlegrass	5	
656:						
Wanoga, dry	*Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/Festuca idahoensis* (CPS111)	Favorable	---	Mountain mahogany	20	
		Normal	---	Antelope bitterbrush	15	
		Unfavorable	---	Big sagebrush	15	
				Idaho fescue	15	
				Ponderosa pine	15	
				Western juniper	10	
				Bluebunch wheatgrass	3	

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
656:						
Henkle, dry	*Pinus ponderosa/Purshia tridentata-Artemesia vaseyana/Festuca idahoensis* (CPS111)	Favorable	---	Mountain mahogany	20	
		Normal	---	Antelope bitterbrush	15	
		Unfavorable	---	Big sagebrush	15	
				Idaho fescue	15	
				Ponderosa pine	15	
				Western juniper	10	
				Bluebunch wheatgrass	3	
657:						
Wanoga, moist	PINE-MAHOGANY-FESCUE 16-20 PZ (R021XY411OR)	Favorable	1,200	Idaho fescue		35
		Normal	1,000	Antelope bitterbrush		10
		Unfavorable	800	Curl-leaf mountain mahogany		5
				Pacific serviceberry		5
				Ponderosa pine		5
				Ross' sedge		5
				Sandberg bluegrass		5
Henkle, moist	PINE-MAHOGANY-FESCUE 16-20 PZ (R021XY411OR)	Favorable	1,200	Idaho fescue		35
		Normal	1,000	Antelope bitterbrush		10
		Unfavorable	800	Curl-leaf mountain mahogany		5
				Pacific serviceberry		5
				Ponderosa pine		5
				Ross' sedge		5
				Sandberg bluegrass		5
658:						
Wanoga	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
Henkle	*Pinus ponderosa/Purshia tridentata-Arcostaphylos patula/Acnatherum occidentale-pumice* (CPS213)	Favorable	---	Greenleaf manzanita	25	
		Normal	---	Ponderosa pine	25	
		Unfavorable	---	Antelope bitterbrush	20	
				Western needlegrass	5	
Rock outcrop.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
659:						
Wanoga, north	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
Henkle, north	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
Rock outcrop.						
660:						
Wanoga	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
Laidlaw	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
661:						
Wanoga	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
Sisters	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
663:						
Wegert	STIPA FESCUE PLAINS 8-10 PZ (R023XY666OR)	Favorable	1,100	Needleandthread		40
		Normal	900	Idaho fescue		15
		Unfavorable	700	Mountain big sagebrush		10
664:						
Wegert, cool	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber’s needlegrass		5
				Western needlegrass		5
665:						
Wegert	JUNIPER PUMICE FLAT 8-10 PZ (R010XA027OR)	Favorable	1,000	Needleandthread		40
		Normal	800	Idaho fescue		10
		Unfavorable	600	Mountain big sagebrush		10
				Indian ricegrass		5
				Needlegrass		5
				Thurber’s needlegrass		5
				Western juniper		5
666:						
Wegert	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross’ sedge		5
				Thurber’s needlegrass		5
Kunceider	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross’ sedge		5
				Thurber’s needlegrass		5
667:						
Wegert, cool	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber’s needlegrass		5
				Western needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
667:						
Kunceider, cool	JUNIPER SHALLOW PUMICE HILLS 10-12 PZ (R010XA021OR)	Favorable	1,000	Idaho fescue		60
		Normal	800	Mountain big sagebrush		10
		Unfavorable	600	Western juniper		10
				Prairie Junegrass		5
				Thurber's needlegrass		5
668:						
Wegert, high precipitation	PUMICE 10-12 PZ (R023XY210OR)	Favorable	1,100	Idaho fescue		50
		Normal	900	Antelope bitterbrush		15
		Unfavorable	700	Western needlegrass		15
				Mountain big sagebrush		10
				Ross' sedge		5
				Thurber's needlegrass		5
Kunceider, high precipitation	PUMICE 10-12 PZ (R023XY210OR)	Favorable	1,100	Idaho fescue		50
		Normal	900	Antelope bitterbrush		15
		Unfavorable	700	Western needlegrass		15
				Mountain big sagebrush		10
				Ross' sedge		5
				Thurber's needlegrass		5
669:						
Wegert	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
Morehouse	FORESTED SANDY LOAM 8-11 PZ (R006XA212OR)	Favorable	700	Needleandthread		35
		Normal	500	Idaho fescue		10
		Unfavorable	300	Indian ricegrass		10
				Western juniper		10
				Beardless wildrye		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
670:						
Weglike	PUMICE 8-10 PZ (R023XY514OR)	Favorable	900	Idaho fescue		50
		Normal	700	Mountain big sagebrush		15
		Unfavorable	500	Thurber's needlegrass		5
				Western needlegrass		5
Jacksplace	PUMICE PLAINS 8-11 PZ (R023XY607OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Mountain big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
				Western needlegrass		5
671:						
Weglike	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
Suckerflat	DROUGHTY PUMICE PLAINS 8-11 PZ (R023XY608OR)	Favorable	1,200	Needleandthread		50
		Normal	1,000	Basin big sagebrush		20
		Unfavorable	800	Indian ricegrass		5
				Needlegrass		5
				Rabbitbrush		5
				Ross' sedge		5
				Thurber's needlegrass		5
672:						
Westbutte, north	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
Lambring, north	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
672:						
Rock outcrop.						
673:						
Westbutte, north	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
Rock outcrop.						
Pernty, south	SOUTH SLOPES 12-16 PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		45
		Normal	1,100	Idaho fescue		10
		Unfavorable	700	Antelope bitterbrush		5
				Basin big sagebrush		5
				Mountain big sagebrush		5
				Wyoming big sagebrush		5
674:						
Widowspring	LOAMY BOTTOM (R023XY104OR)	Favorable	6,000	Basin wildrye		75
		Normal	4,500	Basin big sagebrush		10
		Unfavorable	2,000	Beardless wildrye		5
675:						
Wildcatbutte	SOUTH SLOPES 12-16 PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		45
		Normal	1,100	Idaho fescue		10
		Unfavorable	700	Antelope bitterbrush		5
				Basin big sagebrush		5
				Mountain big sagebrush		5
				Wyoming big sagebrush		5
Chesebro	NORTH SLOPES 12-16 PZ (R023XY310OR)	Favorable	1,500	Idaho fescue		45
		Normal	1,200	Basin wildrye		10
		Unfavorable	800	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Antelope bitterbrush		5
				Mountain snowberry		5
Glassbutte	SHALLOW NORTH 12-16 PZ (R023XY312OR)	Favorable	1,000	Idaho fescue		60
		Normal	700	Low sagebrush		15
		Unfavorable	500	Bluebunch wheatgrass		10
				Sandberg bluegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
676:						
Wildcatbutte, south---	JUNIPER PUMICE SOUTH 10-12 PZ	Favorable	900	Bluebunch wheatgrass		60
	(R010XA007OR)	Normal	700	Basin big sagebrush		10
		Unfavorable	500	Antelope bitterbrush		5
				Sandberg bluegrass		5
				Western juniper		5
				Thurber's needlegrass		3
				Idaho fescue		2
Glencabin, north------	JUNIPER PUMICE NORTH 10-14 PZ	Favorable	1,100	Idaho fescue		40
	(R010XA026OR)	Normal	900	Bluebunch wheatgrass		20
		Unfavorable	700	Mountain big sagebrush		10
				Sandberg bluegrass		5
				Western juniper		5
Rock outcrop.						
677:						
Wildcatbutte, south---	JUNIPER PUMICE SOUTH 10-12 PZ	Favorable	900	Bluebunch wheatgrass		60
	(R010XA007OR)	Normal	700	Basin big sagebrush		10
		Unfavorable	500	Antelope bitterbrush		5
				Sandberg bluegrass		5
				Western juniper		5
				Thurber's needlegrass		3
				Idaho fescue		2
Rock outcrop.						
678:						
Wildcatbutte----------	DROUGHTY SOUTH SLOPES 11-13 PZ	Favorable	1,000	Bluebunch wheatgrass		25
	(R023XY301OR)	Normal	800	Idaho fescue		20
		Unfavorable	500	Thurber needlegrass		15
				Western juniper		15
				Mountain big sagebrush		10
				Cusick's bluegrass		8
Rock outcrop.						
679:						
Wildcatbutte----------	ARID NORTH 8-10 PZ	Favorable	900	Bluebunch wheatgrass		40
	(R023XY602OR)	Normal	600	Thurber's needlegrass		5
		Unfavorable	400	Wyoming big sagebrush		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
679:						
Suckerflat, south-----	SOUTH SLOPES 10-12 PZ	Favorable	900	Bluebunch wheatgrass		50
	(R023XY300OR)	Normal	700	Thurber's needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Basin big sagebrush		5
				Indian ricegrass		5
				Sandberg bluegrass		5
Rock outcrop.						
680:						
Winterim--------------	*Pinus ponderosa/Wyethia mollis*	Favorable	---	Squawcarpet	30	
	(CPF111)	Normal	---	Ponderosa pine	25	
		Unfavorable	---	Antelope bitterbrush	15	
				Wooly wyethia	15	
				Bottlebrush squirreltail	5	
				Pacific serviceberry	5	
				Western juniper	5	
				Western yarrow	5	
				Wheeler bluegrass	5	
				White fir	5	
				White hawkweed	5	
681:						
Wiskan----------------	DROUGHTY SANDY SLOPES 8-11 PZ	Favorable	800	Bluebunch wheatgrass		20
	(R024XY649OR)	Normal	600	Needleandthread		20
		Unfavorable	400	Basin big sagebrush		7
				Indian ricegrass		7
Rock outcrop.						
682:						
Xerolls, north--------	NORTH SLOPES 10-12 PZ	Favorable	1,300	Idaho fescue		50
	(R023XY308OR)	Normal	1,000	Bluebunch wheatgrass		15
		Unfavorable	700	Cusick's bluegrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
Rock outcrop.						
683:						
Xerolls, north--------	PUMICE NORTH SLOPES 10-12 PZ	Favorable	1,400	Idaho fescue		50
	(R023XY613OR)	Normal	1,200	Bluebunch wheatgrass		15
		Unfavorable	900	Mountain big sagebrush		10
				Thurber's needlegrass		5

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
683:						
Rock outcrop.						
684:						
Yankeewell	HIGH SODIC HILLS 8-11 PZ (R024XY648OR)	Favorable	450	Wyoming big sagebrush		15
		Normal	350	Bluebunch wheatgrass		10
		Unfavorable	250	Bottlebrush squirreltail		10
				Shadscale		10
				Basin big sagebrush		5
				Bud sagebrush		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Thurber's needlegrass		5
685:						
Yankeewell	HIGH SODIC HILLS 8-11 PZ (R024XY648OR)	Favorable	450	Wyoming big sagebrush		15
		Normal	350	Bluebunch wheatgrass		10
		Unfavorable	250	Bottlebrush squirreltail		10
				Shadscale		10
				Basin big sagebrush		5
				Bud sagebrush		5
				Sandberg bluegrass		5
				Spiny hopsage		5
				Thurber's needlegrass		5
Noidee	DROUGHTY SODIC HILLS 8-11 PZ (R024XY647OR)	Favorable	300	Black sagebrush		35
		Normal	200	Bottlebrush squirreltail		10
		Unfavorable	100	Shadscale		10
				Bud sagebrush		5
				Sandberg bluegrass		5
				Wyoming big sagebrush		5
686:						
Yapoah, north	*Pinus ponderosa/Purshia tridentata-Arctostaphylos patula/Festuca idahoensis-pumice* (CPS217)	Favorable	---	Antelope bitterbrush	25	
		Normal	---	Ponderosa pine	25	
		Unfavorable	---	Greenleaf manzanita	15	
				Idaho fescue	15	
				Squawcarpet	15	
				Bottlebrush squirreltail	5	

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
687:						
Yapoah, south	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
688:						
Youtlkue	LAKE TERRACE (R024XY006OR)	Favorable	900	Beardless wildrye		95
		Normal	700	Povertyweed		2
		Unfavorable	500			
689:						
Zorravista	SANDY 6-10 PZ (R024XY012OR)	Favorable	1,000	Needleandthread		30
		Normal	800	Fourwing saltbush		25
		Unfavorable	500	Indian ricegrass		20
				Basin big sagebrush		10
				Basin wildrye		5
				Beardless wildrye		5
690:						
Zorravista	SANDY 6-10 PZ (R024XY012OR)	Favorable	1,000	Needleandthread		30
		Normal	800	Fourwing saltbush		25
		Unfavorable	500	Indian ricegrass		20
				Basin big sagebrush		10
				Basin wildrye		5
				Beardless wildrye		5
Hinton	LOAMY 8-10 PZ (R024XY016OR)	Favorable	900	Indian ricegrass		25
		Normal	700	Thurber's needlegrass		25
		Unfavorable	600	Bluebunch wheatgrass		10
				Wyoming big sagebrush		10
				Basin big sagebrush		5
691:						
Lithic Haploxerolls	JUNIPER LAVALANDS 8-11 PZ (R021XY424OR)	Favorable	700	Mountain big sagebrush		25
		Normal	500	Bluebunch wheatgrass		20
		Unfavorable	300	Idaho fescue		20
				Curl-leaf mountain mahogany		10
				Antelope bitterbrush		5
				Fernbush		2
				Wax currant		2
Lava flows.						

Table 6.—Ecological Sites, Plant Associations, and Characteristic Plant Communities—Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
692:						
Steiger	*Pinus ponderosa/Purshia tridentata/Acnatherum occidentale-pumice* (CPS212)	Favorable	---	Ponderosa pine	25	
		Normal	---	Antelope bitterbrush	20	
		Unfavorable	---	Lodgepole pine	5	
				Western needlegrass	5	
693:						
Steiger, high elevation	*Abies concolor/Ceanothus velutinus-Arcostaphylos patula-pumice* (CWS112)	Favorable	---	Ponderosa pine	25	
		Normal	---	Greenleaf manzanita	15	
		Unfavorable	---	Snowbrush ceanothus	15	
				White fir	15	
				Sugar pine	10	
				Antelope bitterbrush	5	
694:						
Steiger, low landscape position	*Pinus contorta/Purshia tridentata/Acnatherum occidentale-pumice* (CLS211)	Favorable	---	Lodgepole pine	35	
		Normal	---	Antelope bitterbrush	10	
		Unfavorable	---	Western needlegrass	5	
				Squaw currant	3	
695:						
Ninemile, hummocky	CLAYPAN 12-16 PZ (R023XY216OR)	Favorable	900	Idaho fescue		50
		Normal	700	Bluebunch wheatgrass		15
		Unfavorable	500	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber's needlegrass		7
696:						
Shanahan	*Pinus ponderosa/Purshia tridentata/Festuca idahoensis-pumice* (CPS211)	Favorable	---	Ponderosa pine	35	
		Normal	---	Antelope bitterbrush	25	
		Unfavorable	---	Idaho fescue	20	
				Mountain mahogany	5	
				Bottlebrush squirreltail	3	
				Western juniper	3	
888:						
Denied access.						
999:						
Water.						

Table 7.—Engineering Soil Properties

(Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
200: Abert-----------	0-2	*Ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	95-100	80-100	45-65	15-30	15-20	NP-5
	2-8	*Ashy sandy loam, ashy loamy sand	*SC-SM, CL, SM	*A-4, A-2	0	0	95-100	90-100	65-80	20-55	15-25	NP-10
	8-13	*Ashy loam, ashy sandy loam	*CL, SC-SM	*A-4, A-6, A-2	0	0	95-100	90-100	60-90	25-70	20-30	5-15
	13-25	*Ashy silt loam, ashy silty clay loam, ashy loam	*CL	*A-6, A-4	0	0	90-100	80-100	75-100	50-100	25-40	10-20
	25-35	*Ashy silt loam, ashy loam, ashy silty clay loam	*CL	*A-6, A-4	0	0	90-100	80-100	75-100	50-100	25-40	10-20
	35-60	*Gravelly ashy loamy sand, ashy sandy loam, ashy loam	*SM, SP-SM, CL	*A-1, A-6	0	0	60-100	50-100	35-100	10-70	15-30	NP-15
201: Actem-----------	0-2	*Cobbly loam	*CL, SC	*A-6, A-4	0-10	15-25	75-95	65-90	55-85	45-70	30-40	10-20
	2-7	*Clay, gravelly clay loam, gravelly clay	*CH, CL	*A-7	0	0-15	75-100	60-100	60-100	50-80	45-55	25-35
	7-15	*Clay loam, clay, cobbly clay loam	*CH, CL	*A-7	0	0-15	85-100	70-100	70-100	50-80	45-55	25-35
	15-20	*Cemented material			---	---	---	---	---	---	---	---
	20-30	*Bedrock			---	---	---	---	---	---	---	---
202: Alyan-----------	0-3	*Gravelly sandy loam	*SC, SC-SM	*A-2, A-1, A-6	0	0-10	75-90	55-75	40-70	15-45	25-35	5-15
	3-11	*Sandy clay loam, sandy loam, loam, gravelly loam, gravelly sandy loam	*CL, SC	*A-6, A-2	0-5	0-10	80-100	55-100	45-100	25-80	25-40	10-20
	11-23	*Clay loam, gravelly clay loam, clay, cobbly clay loam	*CH, SC	*A-7	0	0-10	80-100	60-100	55-100	40-90	45-60	25-35
	23-33	*Bedrock			---	---	---	---	---	---	---	---
203: Anawalt---------	0-3	*Gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	0-10	65-85	55-75	55-75	35-70	35-45	15-25
	3-7	*Cobbly clay, clay	*CH, SC	*A-7	0-10	0-25	80-100	70-90	55-90	40-90	45-65	30-45
	7-18	*Cobbly clay, clay	*CH, SC	*A-7	0-10	0-25	80-100	70-90	55-90	40-90	45-65	30-45
	18-28	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
204:												
Anawalt---------	0-3	*Very gravelly loam	*GC, GC-GM	*A-2, A-6	0-10	0-25	40-55	35-50	30-50	25-45	20-35	5-15
	3-7	*Cobbly clay loam, clay loam, clay, cobbly clay	*CL, CH, SC	*A-6, A-7	0-10	0-25	80-100	70-95	55-90	40-90	35-65	20-45
	7-18	*Cobbly clay, cobbly clay loam, clay loam, clay	*CL, CH, SC	*A-7, A-6	0-10	0-25	80-100	70-95	55-90	40-90	40-65	25-45
	18-28	*Bedrock			---	---	---	---	---	---	---	---
205:												
Anawalt---------	0-3	*Stony loam	*CL, SC-SM	*A-4, A-6	10-25	10-25	80-95	70-90	55-90	40-90	20-35	5-15
	3-7	*Cobbly clay loam, clay loam, clay, cobbly clay	*CL, CH, SC	*A-6, A-7	0-10	0-25	80-100	75-90	55-90	40-90	35-65	20-45
	7-18	*Cobbly clay loam, cobbly clay, clay loam, clay	*CL, CH, SC	*A-7, A-6	0-10	0-25	80-100	70-90	55-90	40-90	40-65	25-45
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Freznik---------	0-2	*Very cobbly loam	*GC, SC	*A-6, A-2	0-10	25-45	65-80	45-70	40-60	30-45	30-40	10-15
	2-11	*Clay, cobbly clay	*CH	*A-7	0-2	0-30	85-100	75-100	65-90	55-85	50-65	30-45
	11-17	*Clay, cobbly clay	*CH	*A-7	0-2	0-30	85-100	75-100	65-90	55-85	50-65	30-45
	17-23	*Clay, cobbly clay	*CH	*A-7	0-2	0-30	85-100	75-100	65-90	55-85	50-65	30-45
	23-31	*Clay loam	*CL, CH	*A-7, A-6	0-5	0-5	90-100	80-100	70-85	55-75	40-50	20-30
	31-41	*Bedrock			---	---	---	---	---	---	---	---
206:												
Anawalt---------	0-3	*Gravelly loam	*CL, GC-GM	*A-4, A-2, A-6	0-10	0-10	65-85	55-75	55-75	35-70	20-35	5-15
	3-7	*Cobbly clay loam, clay loam, clay, cobbly clay	*CL, SC, CH	*A-6, A-7	0-10	0-25	80-100	70-90	55-90	40-90	35-65	20-45
	7-18	*Cobbly clay, cobbly clay loam, clay loam, clay	*CL, CH, SC	*A-7, A-6	0-10	0-25	80-100	70-90	55-90	40-90	40-65	25-45
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Oreneva---------	0-2	*Gravelly loam	*SC, GC	*A-4, A-2, A-6	0	0	55-80	50-75	40-65	30-50	25-35	10-15
	2-10	*Clay loam, loam	*CL, SC	*A-6, A-4	0	0-10	80-100	75-100	60-100	40-80	30-40	10-20
	10-21	*Very gravelly loam, very gravelly clay loam	*GC	*A-2, A-6	0	0-25	40-55	35-50	25-50	20-40	30-40	10-20
	21-31	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
207:												
Anawalt---------	0-3	*Gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	0-10	65-85	55-75	55-75	35-70	35-45	15-25
	3-7	*Cobbly clay, clay	*CH, SC	*A-7	0-10	0-25	80-100	70-90	55-90	40-90	45-65	30-45
	7-18	*Cobbly clay, clay	*CH, SC	*A-7	0-10	0-25	80-100	70-90	55-90	40-90	45-65	30-45
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Raz-------------	0-4	*Very cobbly loam	*GC	*A-6, A-2	0	25-45	45-70	40-65	35-55	30-45	25-40	10-20
	4-12	*Sandy clay loam, gravelly loam, clay loam	*SC, CL	*A-6, A-2	0	0-10	65-95	60-90	50-90	25-70	30-40	10-20
	12-17	*Sandy loam, gravelly loam, clay loam	*SC, SC-SM, CL	*A-2, A-1, A-6	0	0-10	65-95	60-90	35-90	15-70	25-40	5-20
	17-30	*Cemented material			---	---	---	---	---	---	---	---
	30-40	*Bedrock			---	---	---	---	---	---	---	---
208:												
Anawalt---------	0-3	*Stony loam	*CL, SC-SM	*A-4, A-6	10-25	10-25	80-95	70-90	55-90	40-90	20-35	5-15
	3-7	*Cobbly clay loam, clay loam, clay, cobbly clay	*CL, CH, SC	*A-6, A-7	0-10	0-25	80-100	75-90	55-90	40-90	35-65	20-45
	7-18	*Cobbly clay loam, cobbly clay, clay loam, clay	*CL, SC, CH	*A-7, A-6	0-10	0-25	80-100	70-90	55-90	40-90	40-65	25-45
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
209:												
Atlow-----------	0-3	*Very cobbly loam	*SC, CL	*A-2, A-6	0-25	30-45	75-85	50-70	45-65	30-55	30-40	10-20
	3-11	*Very cobbly clay loam, very cobbly sandy clay loam, very gravelly clay loam	*CL, SC	*A-6, A-7, A-2	0	25-45	70-90	45-80	40-75	15-65	35-45	15-25
	11-21	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
210:												
Baconcamp-------	0-4	*Very stony clay loam	*CL	*A-6	20-30	10-30	75-90	70-85	60-80	50-65	30-40	15-20
	4-20	*Very stony loam, very cobbly loam, gravelly loam, very gravelly loam, very stony clay loam	*GC	*A-4, A-6, A-2	0-25	0-30	50-80	50-75	40-65	30-50	30-40	10-20
	20-35	*Very gravelly loam, very gravelly clay loam, very cobbly loam	*GC, CL	*A-4, A-6, A-2	0-10	0-30	50-75	40-70	30-65	25-60	25-40	10-20
	35-45	*Bedrock			---	---	---	---	---	---	---	---
Clamp-----------	0-3	*Very stony clay loam	*GC, CH	*A-7, A-6	25-40	15-30	60-85	50-75	45-70	40-55	40-50	15-25
	3-8	*Very cobbly clay loam	*GC, CH	*A-7, A-6	0-10	25-40	60-85	50-70	45-70	40-55	40-50	15-25
	8-12	*Very cobbly clay loam	*GC, CH	*A-7, A-6	0-10	25-40	60-85	50-70	45-70	40-55	40-50	15-25
	12-22	*Bedrock			---	---	---	---	---	---	---	---
211:												
Baconcamp-------	0-4	*Very cobbly loam	*CL, GC	*A-4, A-6	0-15	15-30	55-80	50-70	45-65	40-60	25-35	10-15
	4-20	*Gravelly loam, very gravelly loam, very cobbly loam	*SC, GC	*A-4, A-6, A-2	0-10	0-30	55-80	50-75	40-65	30-50	25-35	10-15
	20-35	*Very gravelly loam, very gravelly clay loam, very cobbly loam	*GC, CL	*A-4, A-6, A-2	0-10	0-30	50-75	40-70	30-64	25-60	25-40	10-20
	35-45	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
212:												
Bluesters-------	0-4	*Gravelly ashy loamy sand	*SM, SC-SM	*A-1, A-2	0	0	60-80	50-75	40-55	15-25	15-20	NP-5
	4-12	*Ashy loamy sand, gravelly ashy loamy sand, gravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM, GM, SC-SM	*A-2, A-1	0	0	60-100	50-100	40-75	20-30	15-20	NP-5
	12-23	*Ashy loamy coarse sand, gravelly ashy loamy sand, ashy loamy sand, gravelly ashy loamy coarse sand	*SM, GM, SC-SM	*A-2, A-4	0	0	60-100	50-100	40-80	30-40	10-15	NP-5
	23-28	*Gravelly ashy coarse sand, ashy coarse sand, very gravelly ashy coarse sand	*SP-SM, GP	*A-1	0	0	50-95	40-85	25-50	0-10	10-15	NP-5
	28-60	*Cinders	*GP, GP-GM	*A-1	0	0-45	10-40	0-10	0-5	0-5	0-0	NP
213:												
Bluesters, dry--	0-4	*Gravelly ashy loamy sand	*SM, SC-SM	*A-1, A-2	0	0	60-80	50-75	40-55	15-25	15-20	NP-5
	4-12	*Ashy loamy sand, gravelly ashy loamy sand, gravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM, GM, SC-SM	*A-2, A-1	0	0	60-100	50-100	40-75	20-30	15-20	NP-5
	12-23	*Ashy loamy coarse sand, gravelly ashy loamy sand, ashy loamy sand, gravelly ashy loamy coarse sand	*SM, GM, SC-SM	*A-2, A-4	0	0	60-100	50-100	40-80	30-40	10-15	NP-5
	23-28	*Gravelly ashy coarse sand, ashy coarse sand, very gravelly ashy coarse sand	*SP-SM, GP	*A-1	0	0	50-95	40-85	25-50	0-10	10-15	NP-5
	28-60	*Cinders	*GP, GP-GM	*A-1	0	0-45	10-40	0-10	0-5	0-5	0-0	NP

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
214:												
Boilout---------	0-3	*Cobbly ashy fine sandy loam	*SC-SM, SC	*A-2, A-4	0-10	5-15	75-90	70-85	60-75	25-45	15-25	5-10
	3-6	*Cobbly ashy very fine sandy loam, ashy very fine sandy loam, gravelly ashy very fine sandy loam	*SC-SM, CL	*A-4, A-2	0-5	10-15	85-95	75-90	70-85	30-55	20-30	5-10
	6-11	*Ashy clay loam, ashy loam	*CL, SC	*A-6	0	0	90-100	85-100	70-100	45-85	30-40	15-25
	11-16	*Extremely paragravelly ashy loam, very paragravelly ashy loam	*CL	*A-6, A-4	0	0	100	100	85-95	60-75	25-35	10-20
	16-34	*Cemented material			---	---	---	---	---	---	---	---
	34-59	*Cemented material			---	---	---	---	---	---	---	---
	59-62	*Cemented material			---	---	---	---	---	---	---	---
215:												
Bonnick---------	0-3	*Gravelly ashy loamy sand	*SM, SC-SM, SW-SM	*A-2-4, A-1-b	0	0	100	55-75	40-60	10-25	10-15	NP-5
	3-10	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	60-90	40-70	10-30	10-15	NP-5
	10-28	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	60-90	40-70	15-30	10-15	NP-5
	28-42	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-1, A-2	0	0	100	60-90	40-70	15-30	10-15	NP-5
	42-45	*Very gravelly loamy sand, gravelly sandy loam	*SP-SM, SW, SC	*A-1, A-2	0	0	100	35-70	25-60	3-30	10-20	NP-10
	45-60	*Extremely gravelly sand, very gravelly sand	*SP-SM, SP, SP-SC	*A-1	0	0	100	20-35	10-35	0-10	0-10	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
216:												
Bonnick---------	0-3	*Gravelly ashy sandy loam	*SM, SC-SM, SW-SM	*A-2-4, A-1-b	0	0	100	50-75	40-60	10-30	10-15	NP-5
	3-10	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	60-90	40-70	10-30	10-15	NP-5
	10-28	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	60-90	40-70	15-30	10-15	NP-5
	28-42	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-1, A-2	0	0	100	60-90	40-70	15-30	10-15	NP-5
	42-45	*Very gravelly loamy sand, gravelly sandy loam	*SP-SM, SW, SC	*A-1, A-2	0	0	100	35-70	25-60	3-30	10-20	NP-10
	45-60	*Extremely gravelly sand, very gravelly sand	*SP-SM, SP, SP-SC	*A-1	0	0	100	20-35	10-35	0-10	0-10	NP-5
217:												
Bonnick---------	0-3	*Ashy loamy sand	*SM, SC-SM, SW-SM	*A-2-4, A-1-b	0	0	100	85-90	40-70	10-30	10-15	NP-5
	3-10	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	60-90	40-70	10-30	10-15	NP-5
	10-28	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	60-90	40-70	15-30	10-15	NP-5
	28-42	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-1, A-2	0	0	100	60-90	40-70	15-30	10-15	NP-5
	42-45	*Very gravelly loamy sand, gravelly sandy loam	*SP-SM, SW, SC	*A-1, A-2	0	0	100	35-70	25-60	3-30	10-20	NP-10
	45-60	*Extremely gravelly sand, very gravelly sand	*SP-SM, SP, SP-SC	*A-1	0	0	100	20-35	10-35	0-10	0-10	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
217:												
Fort Rock-------	0-5	*Ashy loamy sand	*SC-SM, SM	*A-2	0	0	95-100	85-100	60-75	25-30	0-25	NP-5
	5-16	*Gravelly ashy loamy coarse sand, ashy loamy coarse sand, gravelly ashy loamy sand, ashy loamy sand	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	60-90	30-60	10-25	15-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
218:												
Bonnick---------	0-3	*Very gravelly ashy loamy coarse sand	*SP-SM SC-SM, SM, SW-SM	*A-1-a, A-1-b	0	0	100	35-50	25-40	5-15	10-15	NP-5
	3-10	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	60-90	40-70	10-30	10-15	NP-5
	10-28	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	60-90	40-70	15-30	10-15	NP-5
	28-42	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-1, A-2	0	0	100	60-90	40-70	15-30	10-15	NP-5
	42-45	*Very gravelly loamy sand, gravelly sandy loam	*SP-SM, SW, SC	*A-1, A-2	0	0	100	35-70	25-60	3-30	10-20	NP-10
	45-60	*Extremely gravelly sand, very gravelly sand	*SP-SM, SP, SP-SC	*A-1	0	0	100	20-35	10-35	0-10	0-10	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
218:												
Fort Rock-------	0-5	*Very gravelly ashy coarse sandy loam	*SM, SP-SM, SC-SM	*A-1	0	0	95-100	25-50	15-35	10-20	10-15	NP-5
	5-16	*Gravelly ashy loamy coarse sand, ashy loamy coarse sand, gravelly ashy loamy sand, ashy loamy sand	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	60-90	30-60	10-25	15-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
219:												
Bonnick, low precipitation--	0-3	*Very gravelly ashy loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	35-50	25-40	5-15	10-15	NP-5
	3-10	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	60-90	40-70	10-30	10-15	NP-5
	10-28	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	60-90	40-70	15-30	10-15	NP-5
	28-42	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-1, A-2	0	0	100	60-90	40-70	15-30	10-15	NP-5
	42-45	*Very gravelly loamy sand, gravelly sandy loam	*SP-SM, SW, SC	*A-1, A-2	0	0	100	35-70	25-60	3-30	10-20	NP-10
	45-60	*Extremely gravelly sand, very gravelly sand	*SP-SM, SP, SP-SC	*A-1	0	0	100	20-35	10-35	0-10	0-10	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
219:												
Fort Rock, low precipitation--	0-5	*Very gravelly ashy loam	*GM, GC-GM	*A-2, A-4	0	0	40-60	25-50	25-50	20-40	10-15	NP-5
	5-16	*Gravelly ashy loamy coarse sand, ashy loamy coarse sand, gravelly ashy loamy sand, ashy loamy sand	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	60-90	30-60	10-25	15-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
220:												
Bonnick---------	0-3	*Gravelly ashy loamy sand	*SM, SC-SM, SW-SM	*A-2-4, A-1-b	0	0	100	55-75	40-60	10-25	10-15	NP-5
	3-10	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	60-90	40-70	10-30	10-15	NP-5
	10-28	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	60-90	40-70	15-30	10-15	NP-5
	28-42	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-1, A-2	0	0	100	60-90	40-70	15-30	10-15	NP-5
	42-45	*Very gravelly loamy sand, gravelly sandy loam	*SP-SM, SW, SC	*A-1, A-2	0	0	100	35-70	25-60	3-30	10-20	NP-10
	45-60	*Extremely gravelly sand, very gravelly sand	*SP-SM, SP, SP-SC	*A-1	0	0	100	20-35	10-35	0-10	0-10	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
220:												
Kunceider-------	0-5	*Ashy loamy sand	*SC-SM, SM	*A-2, A-1	0	0-5	85-100	80-100	50-75	20-30	20-30	NP-5
	5-9	*Very cobbly ashy loamy sand	*SC-SM, GP-GM	*A-1	0	25-60	50-85	45-80	20-50	5-20	15-25	NP-5
	9-14	*Extremely gravelly ashy sandy loam, very cobbly ashy sandy loam, very cobbly ashy loamy sand, extremely gravelly ashy loamy sand	*GW-GM, GC, GW	*A-1, A-2	0	30-40	30-75	25-70	10-50	0-30	15-25	NP-10
	14-24	*Bedrock			---	---	---	---	---	---	---	---
221:												
Bonnick---------	0-3	*Ashy loamy sand	*SM, SC-SM, SW-SM	*A-2-4, A-1-b	0	0	100	85-90	40-70	10-30	10-15	NP-5
	3-10	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	60-90	40-70	10-30	10-15	NP-5
	10-28	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	60-90	40-70	15-30	10-15	NP-5
	28-42	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-1, A-2	0	0	100	60-90	40-70	15-30	10-15	NP-5
	42-45	*Very gravelly loamy sand, gravelly sandy loam	*SP-SM, SW, SC	*A-1, A-2	0	0	100	35-70	25-60	3-30	10-20	NP-10
	45-60	*Extremely gravelly sand, very gravelly sand	*SP-SM, SP, SP-SC	*A-1	0	0	100	20-35	10-35	0-10	0-10	NP-5
Morehouse-------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15
222:												
Booth-----------	0-4	*Very stony loam	*CL, GC	*A-6, A-2	15-40	0-30	60-90	55-85	50-80	35-70	30-40	10-15
	4-24	*Clay, silty clay	*CH	*A-7	0	0-10	95-100	90-100	75-100	65-95	65-80	35-45
	24-26	*Bedrock			---	---	---	---	---	---	---	---
	26-36	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
223:												
Booth-----------	0-4	*Very stony loam	*CL, GC	*A-6, A-2	15-40	0-30	60-90	55-85	50-80	35-70	30-40	10-15
	4-24	*Clay, silty clay	*CH	*A-7	0	0-10	95-100	90-100	75-100	65-95	65-80	35-45
	24-26	*Bedrock			---	---	---	---	---	---	---	---
	26-36	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
224:												
Borobey---------	0-4	*Ashy fine sandy loam	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	90-100	85-100	45-70	10-25	10-15	NP-5
	4-12	*Ashy loamy sand, gravelly ashy sandy loam, gravelly ashy loamy sand, ashy sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	30-95	10-75	10-15	NP-5
	12-50	*Ashy loamy fine sand, gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	45-95	10-55	10-15	NP-5
	50-68	*Ashy loamy sand, very gravelly ashy loamy coarse sand, ashy gravelly loamy sand, ashy sandy loam, very gravelly ashy sandy loam	*SM, CL-ML, SW-SM, ML	*A-2, A-1, A-4	0	0	60-100	35-100	10-95	5-55	10-15	NP-5
225:												
Borobey---------	0-4	*Ashy loamy sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	90-100	85-100	45-70	10-25	10-15	NP-5
	4-12	*Ashy loamy sand, gravelly ashy sandy loam, gravelly ashy loamy sand, ashy sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	30-95	10-75	10-15	NP-5
	12-50	*Ashy loamy fine sand, gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	45-95	10-55	10-15	NP-5
	50-68	*Ashy loamy sand, very gravelly ashy loamy coarse sand, ashy gravelly loamy sand, ashy sandy loam, very gravelly ashy sandy loam	*SM, CL-ML, SW-SM, ML	*A-2, A-1, A-4	0	0	60-100	35-100	10-95	5-55	10-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
226: Borobey---------	0-4	*Ashy sandy loam	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	90-100	85-100	45-70	10-25	10-15	NP-5
	4-12	*Ashy loamy sand, gravelly ashy sandy loam, gravelly ashy loamy sand, ashy sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	30-95	10-75	10-15	NP-5
	12-50	*Ashy loamy fine sand, gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	45-95	10-55	10-15	NP-5
	50-68	*Ashy loamy sand, very gravelly ashy loamy coarse sand, ashy gravelly loamy sand, ashy sandy loam, very gravelly ashy sandy loam	*SM, CL-ML, SW-SM, ML	*A-2, A-1, A-4	0	0	60-100	35-100	10-95	5-55	10-15	NP-5
227: Borobey---------	0-4	*Ashy sandy loam	*SM, SP-SM, SC-SM	*A-2, A-1	0	0	90-100	85-100	45-70	10-25	10-15	NP-5
	4-12	*Ashy loamy sand, gravelly ashy sandy loam, gravelly ashy loamy sand, ashy sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	30-95	10-75	10-15	NP-5
	12-50	*Ashy loamy fine sand, gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	45-95	10-55	10-15	NP-5
	50-68	*Ashy loamy sand, very gravelly ashy loamy coarse sand, ashy gravelly loamy sand, ashy sandy loam, very gravelly ashy sandy loam	*SM, CL-ML, SW-SM, ML	*A-2, A-1, A-4	0	0	60-100	35-100	10-95	5-55	10-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
227:												
Morehouse	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15
228:												
Borobey	0-4	*Ashy sandy loam	*SM, SP-SM, SC-SM	*A-2, A-1	0	0	90-100	85-100	45-70	10-25	10-15	NP-5
	4-12	*Ashy loamy sand, gravelly ashy sandy loam, gravelly ashy loamy sand, ashy sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	30-95	10-75	10-15	NP-5
	12-50	*Ashy loamy fine sand, gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	45-95	10-55	10-15	NP-5
	50-68	*Ashy loamy sand, very gravelly ashy loamy coarse sand, ashy gravelly loamy sand, ashy sandy loam, very gravelly ashy sandy loam	*SM, CL-ML, SW-SM, ML	*A-2, A-1, A-4	0	0	60-100	35-100	10-95	5-55	10-15	NP-5
Oatmanflat	0-3	*Ashy sandy loam	*SC-SM, CL-ML, SM	*A-4, A-2	0	0	90-100	85-100	60-85	30-55	10-15	NP-5
	3-12	*Ashy sandy clay loam, ashy sandy loam	*SC, SC-SM	*A-4, A-2	0	0	90-100	85-100	45-75	30-45	20-35	5-15
	12-28	*Ashy coarse sandy loam, ashy sandy loam	*SC, SC-SM	*A-2	0	0	90-100	85-100	45-55	25-30	20-30	5-10
	28-44	*Ashy clay loam, ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2, A-7	0	0	90-100	85-100	55-80	30-65	30-45	10-25
	44-53	*Gravelly ashy sandy clay loam, ashy clay loam, ashy fine sandy loam, ashy loam	*CL	*A-6, A-7	0	0-10	65-100	60-100	55-90	50-75	30-45	10-25
	53-64	*Cemented material			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
229:												
Borobey---------	0-4	*Ashy loamy sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	90-100	85-100	45-70	10-25	10-15	NP-5
	4-12	*Ashy loamy sand, gravelly ashy sandy loam, gravelly ashy loamy sand, ashy sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	30-95	10-75	10-15	NP-5
	12-50	*Ashy loamy fine sand, gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	45-95	10-55	10-15	NP-5
	50-68	*Ashy loamy sand, very gravelly ashy loamy coarse sand, ashy gravelly loamy sand, ashy sandy loam, very gravelly ashy sandy loam	*SM, CL-ML, SW-SM, ML	*A-2, A-1, A-4	0	0	60-100	35-100	10-95	5-55	10-15	NP-5
Overallflat-----	0-4	*Ashy very fine sandy loam	*CL, CL-ML	*A-4	0	0	100	100	85-95	50-65	25-30	5-10
	4-7	*Ashy silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-100	30-40	10-20
	7-14	*Ashy silty clay loam, ashy clay loam, ashy clay	*CH, CL	*A-7, A-6	0	0	100	100	90-100	70-95	40-55	20-30
	14-26	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0	100	100	80-90	35-55	30-40	15-25
	26-60	*Ashy loamy fine sand, ashy fine sandy loam, very gravelly ashy sand	*SC-SM, CL-ML, GP	*A-4, A-1	0	0	35-100	30-100	15-90	0-55	15-20	NP-5
230:												
Brabble---------	0-3	*Gravelly sandy clay loam	*SC	*A-2, A-6	0	0-10	75-90	50-75	45-70	20-50	30-40	10-15
	3-9	*Sandy clay loam, gravelly sandy clay loam	*SM, SC, CL	*A-4, A-6, A-2	0	0-10	80-95	60-90	55-85	25-55	30-40	10-15
	9-26	*Clay loam, gravelly loam, loam, gravelly clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	80-95	60-90	55-90	35-75	30-45	10-20
	26-33	*Loam, gravelly loam, clay loam, gravelly clay loam	*ML, CL, SC	*A-4, A-2, A-7	0	0-10	80-95	60-90	55-90	35-75	30-45	10-20
	33-38	*Cemented material			---	---	---	---	---	---	---	---
	38-48	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
230:												
Calderwood------	0-2	*Very gravelly sand	*GM, GC-GM, GP-GM	*A-1	0	0-10	40-60	30-55	25-45	10-20	0-20	NP-5
	2-10	*Very cobbly loam, very cobbly clay loam	*SC, CL	*A-6, A-2, A-7	0-10	30-40	85-95	55-80	50-75	30-65	30-45	10-25
	10-20	*Bedrock			---	---	---	---	---	---	---	---
231:												
Brace-----------	0-10	*Cobbly loam	*CL, GC-GM	*A-6, A-4	0-10	15-30	60-85	55-80	50-75	45-60	25-40	5-20
	10-14	*Cobbly loam, sandy clay loam, clay loam, cobbly sandy clay loam, loam	*CL, SC	*A-6, A-2, A-7	0-10	0-30	80-95	65-90	60-85	25-75	30-45	10-25
	14-22	*Cobbly clay loam, gravelly loam, gravelly clay loam	*CL, SC	*A-6, A-2	0	0-25	75-90	55-80	50-75	30-60	30-40	10-20
	22-26	*Cemented material			---	---	---	---	---	---	---	---
	26-36	*Bedrock			---	---	---	---	---	---	---	---
Foleylake-------	0-2	*Very cobbly loam	*SC-SM, CL	*A-2, A-1, A-4	10-25	25-40	70-85	45-70	40-70	25-55	20-30	5-10
	2-8	*Very cobbly loam	*SC-SM, CL	*A-2, A-1, A-4	10-25	25-40	70-85	45-70	40-70	25-55	20-30	5-10
	8-18	*Gravelly clay	*CH, SC	*A-7, A-2	0	0-10	75-90	55-75	55-75	35-75	50-60	25-35
	18-23	*Gravelly clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	75-95	55-85	50-85	35-70	35-50	20-30
	23-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
232:												
Bridgewell------	0-3	*Ashy loam	*ML, MH	*A-4	0	0	100	100	95-100	60-80	30-55	5-20
	3-23	*Ashy clay loam, ashy mucky loam, ashy loam	*MH, ML, OH	*A-7, A-4	0	0	100	100	90-100	60-85	35-65	10-25
	23-36	*Ashy silt loam, ashy silty clay loam, ashy loam	*CL, CH	*A-6, A-7, A-4	0	0	100	100	90-100	55-100	25-50	10-25
	36-60	*Ashy loam, ashy silty clay loam, ashy silt loam	*CL	*A-4, A-7	0	0	100	100	90-100	55-100	25-45	10-26

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
233:												
Bridgewell------	0-2	*Ashy sandy loam	*SC-SM, SM	*A-2, A-1, A-4	0	0	95-100	90-100	35-70	25-40	15-20	NP-5
	2-12	*Ashy loam, ashy clay loam	*CL	*A-4, A-6	0	0	95-100	90-100	75-95	55-80	30-40	10-20
	12-60	*Very fine sandy loam, loam, silt loam, fine sandy loam	*CL, SC-SM	*A-4	0	0	95-100	90-100	75-90	45-70	20-30	5-10
234:												
Bullump, south--	0-3	*Extremely gravelly loam	*GC, GP-GC	*A-2	10-15	15-30	20-45	15-35	15-30	10-25	20-30	5-10
	3-11	*Extremely gravelly loam, very gravelly loam	*GC, GC-GM	*A-2	10-15	10-25	25-45	20-40	20-35	15-30	20-30	5-10
	11-42	*Very gravelly clay loam, very gravelly loam	*GC	*A-2, A-6	0-10	0-25	40-65	30-55	30-50	20-40	30-40	10-20
	42-60	*Extremely gravelly loam, very gravelly loam	*GC, GP-GC	*A-2	0-15	15-30	25-45	15-35	15-30	10-30	25-30	5-10
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Nuss, south-----	0-3	*Stony loam	*SC, CL	*A-4, A-6, A-2	15-30	0-10	75-95	70-90	50-80	35-60	25-35	10-15
	3-17	*Clay loam, loam, gravelly loam, cobbly loam	*CL, GC	*A-6, A-2, A-7	0-10	0-20	55-95	50-90	40-90	30-70	30-45	10-25
	17-27	*Bedrock			---	---	---	---	---	---	---	---
236:												
Bunyard---------	0-2	*Ashy silt loam	*CL	*A-4	0	0	100	90-100	85-100	65-100	25-35	10-20
	2-6	*Ashy silty clay loam, ashy clay loam, clay	*CH, CL	*A-7, A-6	0	0	100	90-100	80-100	65-90	40-60	20-35
	6-16	*Ashy clay loam, ashy sandy clay loam	*CL, CH	*A-7, A-6	0	0	100	90-100	85-100	50-85	35-50	15-25
	16-40	*Ashy loamy very fine sand, ashy fine sandy loam, ashy very fine sandy loam	*SC-SM, SM, CL	*A-4, A-2	0	0	100	90-100	85-100	35-60	15-30	NP-10
	40-60	*Ashy very fine sandy loam, ashy fine sandy loam, ashy loamy very fine sand	*SC, SM, CL	*A-4, A-2	0	0	100	90-100	85-100	35-60	15-30	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
237:												
Cabinspring-----	0-8	*Gravelly ashy loam	*GM,	*A-4, A-2	0	0-10	60-80	55-75	50-60	30-50	30-40	5-10
	8-12	*Very gravelly ashy loam	*GM,	*A-2, A-1, A-4	0	5-15	40-65	35-60	40-55	20-40	30-40	5-10
	12-24	*Very gravelly ashy loam	*GM,	*A-2, A-1	0	5-15	40-65	35-60	30-50	20-40	30-40	5-10
	24-30	*Very gravelly ashy loam, very gravelly ashy clay loam, very cobbly ashy clay loam	*GC, GM	*A-2	0	10-30	40-55	35-50	30-45	25-35	35-50	10-25
	30-36	*Extremely stony clay, very stony clay	*GC, GP-GC	*A-2, A-7	25-65	10-25	25-70	20-60	15-55	10-45	50-60	25-35
	36-46	*Bedrock			---	---	---	---	---	---	---	---
Chesebro--------	0-4	*Very cobbly ashy loam	*GC, CL, GC-GM	*A-2, A-6, A-1	0-10	25-30	45-75	35-65	30-60	25-55	25-40	5-15
	4-24	*Very stony ashy loam, very cobbly ashy loam	*GC, GC-GM, CL	*A-2, A-1, A-6	0-30	10-65	35-85	30-80	25-75	20-60	25-40	5-15
	24-60	*Very gravelly ashy loam, very cobbly ashy clay loam, very gravelly ashy sandy clay loam, very cobbly ashy loam	*GC, CL	*A-2, A-7	0-15	10-60	35-85	30-80	25-80	20-65	30-45	15-25
Hayespring------	0-5	*Cobbly ashy loam	*CL, SC-SM, ML	*A-4, A-2	0-10	15-40	75-95	70-90	55-75	35-60	25-35	5-10
	5-13	*Cobbly ashy loam, gravelly ashy sandy loam, ashy loam	*CL, ML, SC-SM	*A-4, A-2	0-10	10-40	70-95	65-90	50-75	35-60	25-35	5-10
	13-37	*Very cobbly ashy clay loam, very cobbly ashy sandy clay loam	*GC, CL	*A-6, A-2	0-10	25-60	50-80	45-75	45-75	35-60	35-45	15-25
	37-60	*Very cobbly loamy coarse sand, very bouldery ashy sandy loam	*GM, SC, GP-GM	*A-1, A-2	0-45	25-45	55-85	50-80	30-60	10-30	15-30	NP-10
238:												
Calderwood------	0-2	*Very gravelly sand	*GM, GC-GM, GP-GM	*A-1	0	0-10	40-60	30-55	25-45	10-20	0-20	NP-5
	2-10	*Very cobbly loam, very cobbly clay loam	*SC, CL	*A-6, A-2, A-7	0-10	30-40	85-95	55-80	50-75	30-65	30-45	10-25
	10-20	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
238:												
McConnel--------	0-1	*Very gravelly sandy loam	*GC-GM	*A-1	0	0-15	35-55	30-50	20-30	10-20	15-25	NP-5
	1-12	*Sandy loam, loam	*SC-SM, SM, ML, CL-ML	*A-2, A-1, A-4	0	0	80-100	75-95	50-85	25-70	15-25	NP-10
	12-18	*Gravelly sandy loam, gravelly loamy sand, very gravelly sand, extremely gravelly sand, very gravelly sandy loam	*GC-GM, SC-SM, SM, GM	*A-1, A-2	0	0	25-75	20-70	10-50	5-30	15-25	NP-10
	18-60	*Very gravelly sand, extremely cobbly sand, extremely gravelly sand, very gravelly loamy sand, extremely gravelly coarse sand	*GP-GM	*A-1	0	0-15	15-55	10-50	5-30	5-10	10-20	NP-5
239:												
Carryback, eroded---------	0-2	*Very cobbly loam	*SC, GC	*A-4	5-25	30-55	70-85	60-75	50-65	40-50	25-35	10-15
	2-8	*Silty clay loam, clay loam	*CL	*A-6	0-5	0-10	85-100	75-100	70-100	55-90	35-45	15-25
	8-15	*Clay, silty clay	*CH	*A-7	0	0-10	85-100	75-100	70-100	65-95	50-65	30-40
	15-33	*Loam, silty clay loam, silt loam	*CL	*A-6, A-4	0	0-10	95-100	85-100	75-95	60-90	25-35	10-15
	33-43	*Bedrock			---	---	---	---	---	---	---	---
240:												
Carryback-------	0-3	*Very stony clay loam	*CL, GC	*A-6	30-60	5-25	70-90	60-75	55-75	45-60	40-45	20-25
	3-7	*Silty clay loam, loam	*CL	*A-6	0	0	90-100	80-100	70-100	60-95	35-45	15-25
	7-11	*Clay, silty clay, gravelly silty clay	*CH	*A-7	0	0-10	70-100	60-100	60-100	55-95	50-65	30-40
	11-17	*Clay, gravelly silty clay, silty clay, gravelly clay	*CH	*A-7	0	0-15	70-100	60-100	60-100	55-95	50-65	30-40
	17-24	*Clay, gravelly silty clay, gravelly clay, silty clay	*CH	*A-7	0	0-15	70-100	60-100	60-100	55-95	50-65	30-40
	24-34	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
241:												
Carryback-------	0-3	*Extremely cobbly clay loam	*GC	*A-2	0-15	45-80	25-45	20-40	20-40	15-35	40-45	20-25
	3-7	*Silty clay loam, loam	*CL	*A-6	0	0	90-100	80-100	70-100	60-95	35-45	15-25
	7-11	*Clay, silty clay, gravelly silty clay	*CH	*A-7	0	0-10	70-100	60-100	60-100	55-95	50-65	30-40
	11-17	*Clay, gravelly silty clay, silty clay, gravelly clay	*CH	*A-7	0	0-15	70-100	60-100	60-100	55-95	50-65	30-40
	17-24	*Clay, gravelly silty clay, gravelly clay, silty clay	*CH	*A-7	0	0-15	70-100	60-100	60-100	55-95	50-65	30-40
	24-34	*Bedrock			---	---	---	---	---	---	---	---
Pearlwise-------	0-6	*Clay loam	*CL	*A-6, A-4	0	0	85-100	80-100	70-95	55-80	30-40	10-20
	6-22	*Clay loam, loam, gravelly clay loam	*CL, GC	*A-6, A-4, A-7	0	0-15	65-100	60-100	55-95	40-80	30-45	10-25
	22-37	*Bedrock			---	---	---	---	---	---	---	---
242:												
Carvix----------	0-6	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	85-100	80-100	70-100	25-35	5-15
	6-19	*Silt loam, loam	*CL, CL-ML	*A-4, A-6	0	0	100	85-100	80-100	55-100	25-35	5-15
	19-60	*Loam, clay loam	*ML, CL, SM	*A-4, A-6	0	0	100	85-100	75-100	45-85	30-40	5-15
243:												
Catlow----------	0-3	*Gravelly sandy loam	*SC-SM, GC-GM	*A-4, A-2	0-3	0-5	65-85	55-75	40-65	30-50	15-25	5-10
	3-21	*Extremely cobbly fine sandy loam, very stony sandy clay loam, very gravelly sandy clay loam, gravelly sandy loam, very gravelly sandy loam	*SC, SW-SC	*A-2, A-6, A-1	0-15	10-30	55-85	20-75	10-60	5-40	20-35	5-15
	21-30	*Extremely gravelly sandy loam, very cobbly sandy loam, extremely cobbly loamy coarse sand, very gravelly sandy loam, very cobbly loamy sand	*GP-GC, GC, GP	*A-1, A-2	0-15	10-30	35-70	10-55	5-50	0-35	15-25	5-10
	30-60	*Extremely gravelly sandy loam, extremely cobbly coarse sand, extremely cobbly loamy coarse sand, extremely gravelly sand, very gravelly sand	*GP-GM, GP, SC-SM	*A-1, A-2	0-15	25-45	45-80	10-55	5-45	0-30	5-20	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
244:												
Catlow	0-3	*Very gravelly sandy loam	*SC-SM, SP-SC	*A-1, A-2	5-15	10-15	65-85	35-65	25-50	10-30	15-25	5-10
	3-21	*Extremely cobbly fine sandy loam, very stony sandy clay loam, very gravelly sandy clay loam, gravelly sandy loam, very gravelly sandy loam	*SC, SW-SC	*A-2, A-6, A-1	0-15	10-30	55-85	20-75	10-60	5-40	20-35	5-15
	21-30	*Extremely gravelly sandy loam, very cobbly sandy loam, extremely cobbly loamy coarse sand, very gravelly sandy loam, very cobbly loamy sand	*GP-GC, GC, GP	*A-1, A-2	0-15	10-30	35-70	10-55	5-50	0-35	15-25	5-10
	30-60	*Extremely gravelly sandy loam, extremely cobbly coarse sand, extremely cobbly loamy coarse sand, extremely gravelly sand, very gravelly sand	*GP-GM, GP, SC-SM	*A-1, A-2	0-15	25-45	45-80	10-55	5-45	0-30	5-20	NP-5
Davey	0-3	*Loamy sand	*SM, SC-SM	*A-1, A-2	0	0	90-100	75-100	45-65	15-30	10-20	NP-5
	3-23	*Sandy loam, fine sandy loam	*SC-SM, SC, SM	*A-4, A-1	0	0	95-100	75-100	50-75	25-45	15-25	NP-10
	23-60	*Loamy fine sand, fine sand, loamy sand	*SM, SC-SM	*A-2	0	0	95-100	75-100	60-90	15-35	15-20	NP-5
245:												
Catnapp	0-5	*Extremely cobbly loam	*GC-GM, GW-GC, GC	*A-1, A-2	0-15	30-60	30-55	20-45	10-40	10-35	20-30	5-10
	5-7	*Fine sandy loam, loam	*SC, CL	*A-4, A-2	0	0-10	90-100	85-95	70-80	35-60	25-35	10-20
	7-14	*Clay, clay loam, cobbly clay	*CH	*A-7	0-5	0-25	90-100	80-100	75-95	70-80	50-60	25-35
	14-25	*Clay loam, cobbly clay	*CH	*A-7	0-5	0-25	90-100	80-100	75-95	70-80	50-60	25-35
	25-35	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
246:												
Chancelakes-----	0-1	*Ashy silt loam	*MH	*A-5	0	0	100	100	95-100	70-100	50-60	NP-5
	1-10	*Clay, clay loam, silty clay	*CH, CL	*A-7, A-6	0	0	100	100	95-100	70-100	40-55	25-35
	10-29	*Clay, clay loam, silty clay loam	*CH, CL	*A-7, A-6	0	0	100	100	95-100	65-95	40-60	25-40
	29-58	*Clay, clay loam, silty clay	*CL, CH	*A-7, A-6	0	0	100	100	95-100	65-100	40-60	25-40
	58-63	*Ashy sandy clay loam, ashy clay loam	*MH, SM	*A-5	0	0	100	100	90-100	45-85	50-60	NP-5
Silverash-------	0-2	*Ashy fine sandy loam	*CL, SC-SM	*A-4	0	0	100	100	70-85	40-55	20-30	5-10
	2-8	*Ashy loam, ashy silt loam	*CL, CL-ML	*A-4	0	0	100	100	85-95	60-90	20-30	5-10
	8-21	*Clay, clay loam, silty clay loam	*CH, SC	*A-7	0	0	100	100	80-95	40-70	45-60	25-40
	21-62	*Sandy clay loam, very fine sandy loam, clay loam	*CL, SC	*A-6, A-4, A-7	0	0	100	100	80-95	40-70	30-45	10-25
247:												
Chen------------	0-2	*Very cobbly loam	*GC, GC-GM, CL	*A-6, A-1	0-10	25-40	55-80	35-70	30-65	20-55	20-40	5-20
	2-6	*Very cobbly loam	*GC, GC-GM, CL	*A-6, A-1	0-10	25-40	55-80	35-70	30-70	20-55	20-40	5-20
	6-17	*Very cobbly clay, very cobbly clay loam, extremely cobbly clay loam, extremely gravelly clay, extremely cobbly clay, very gravelly clay	*GC, CH	*A-7, A-2	10-15	25-40	45-80	30-70	30-70	20-65	40-60	25-40
	17-27	*Bedrock			---	---	---	---	---	---	---	---
Erakatak--------	0-3	*Extremely gravelly ashy sandy loam	*GW-GC, GC	*A-2, A-1	0-10	10-25	40-60	10-35	5-30	0-20	20-30	5-10
	3-11	*Very gravelly ashy loam, very cobbly ashy loam, very gravelly ashy clay loam, very cobbly ashy clay loam	*GC, CL	*A-2	0-10	10-40	50-80	25-70	25-70	15-55	30-45	10-20
	11-20	*Very cobbly ashy clay loam	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	45-55	25-30
	20-27	*Very cobbly ashy clay, very cobbly clay	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	50-60	30-35
	27-37	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
247:												
Lambring, north	0-5	*Very cobbly sandy loam	*GC-GM, SC	*A-2, A-1	0-25	25-40	50-90	45-80	25-55	15-30	20-25	5-10
	5-20	*Very cobbly sandy loam	*GP-GC, SM	*A-2, A-1	0-15	30-55	45-90	40-80	15-55	10-30	25-35	5-10
	20-50	*Extremely cobbly loamy sand, very cobbly loam, extremely cobbly sandy loam, very gravelly loam	*GP-GC, GC	*A-1, A-4	0-15	25-55	30-75	25-65	10-60	0-50	15-25	5-10
	50-60	*Bedrock			---	---	---	---	---	---	---	---
248:												
Chesebro--------	0-4	*Very cobbly ashy loam	*GC, CL, GC-GM	*A-2, A-6, A-1	0-10	25-30	45-75	35-65	30-60	25-55	25-40	5-15
	4-24	*Very stony ashy loam, very cobbly ashy loam	*GC, GC-GM, CL	*A-2, A-1, A-6	0-30	10-65	35-85	30-80	25-75	20-60	25-40	5-15
	24-60	*Very gravelly ashy loam, very cobbly ashy clay loam, very gravelly ashy sandy clay loam, very cobbly ashy loam	*GC, CL	*A-2, A-7	0-15	10-60	35-85	30-80	25-80	20-65	30-45	15-25
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
249:												
Cinderfall------	0-3	*Ashy loamy sand	*SM	*A-2	0	0	85-100	80-95	55-65	15-25	20-30	NP-5
	3-21	*Ashy loamy sand	*SM	*A-2	0	0	85-100	80-95	55-65	15-25	20-30	NP-5
	21-62	*Extremely gravelly ashy very fine sandy loam, extremely gravelly ashy fine sandy loam, extremely gravelly ashy sandy loam, extremely cobbly ashy fine sandy loam, extremely cobbly ashy sandy loam	*SP-SC, GP	*A-1, A-2	0	15-45	50-70	5-35	5-30	0-20	15-25	5-10
	62-68	*Extremely gravelly ashy very fine sand	*SP-SM, SP	*A-1	0	15-45	55-70	5-35	5-35	0-15	5-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
249:												
Fort Rock-------	0-5	*Very gravelly ashy loamy sand	*SP-SM, SC-SM	*A-1	0	0	95-100	25-50	10-30	5-15	10-15	NP-5
	5-16	*Gravelly ashy loamy coarse sand, ashy loamy coarse sand, gravelly ashy loamy sand, ashy loamy sand	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	60-90	30-60	10-25	15-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
Kunceider-------	0-5	*Cobbly ashy loamy sand	*SC-SM, SM, SW-SM	*A-1	0	15-40	70-90	65-85	25-50	10-20	20-30	NP-5
	5-9	*Very cobbly ashy loamy sand	*SC-SM, GP-GM	*A-1	0	25-60	50-85	45-80	20-50	5-20	15-25	NP-5
	9-14	*Extremely gravelly ashy sandy loam, very cobbly ashy sandy loam, very cobbly ashy loamy sand, extremely gravelly ashy loamy sand	*GW-GM, GC, GW	*A-1, A-2	0	30-40	30-75	25-70	10-50	0-30	15-25	NP-10
	14-24	*Bedrock			---	---	---	---	---	---	---	---
250:												
Cleavage--------	0-7	*Very cobbly loam	*CL, GC	*A-4, A-2, A-6	0-10	15-45	60-80	55-70	45-65	35-60	25-35	10-15
	7-11	*Very cobbly clay loam, very cobbly loam, very gravelly loam, very gravelly clay loam	*CL, GC	*A-6, A-2	0-10	25-50	55-70	55-65	40-60	30-50	30-40	15-25
	11-21	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
250:												
Ninemile--------	0-2	*Cobbly loam	*CL, CL-ML	*A-4, A-6	0-10	15-30	80-95	75-90	65-85	50-70	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---
Westbutte-------	0-3	*Very stony loam	*SM, CL, GC	*A-4, A-6, A-2	25-55	10-35	50-75	45-70	35-65	25-60	30-40	10-15
	3-11	*Very cobbly loam, extremely cobbly clay loam, very cobbly clay loam, extremely cobbly loam, very stony loam	*GC, SC	*A-6, A-7, A-2	0-50	30-55	30-85	25-80	25-60	20-50	30-45	10-20
	11-21	*Extremely cobbly clay loam, very cobbly loam, very stony loam, very cobbly clay loam, extremely cobbly loam	*GC	*A-6, A-2, A-7	0-50	30-55	30-65	25-60	25-60	20-50	30-45	10-20
	21-31	*Bedrock			---	---	---	---	---	---	---	---
251:												
Cleet-----------	0-2	*Very gravelly sandy loam	*GC	*A-2	0-10	0-20	30-50	25-45	15-35	10-20	25-35	10-15
	2-15	*Very gravelly loam, very gravelly sandy loam	*GC	*A-2, A-6	0-10	0-15	30-55	25-50	25-50	15-40	30-40	15-20
	15-60	*Cemented material			---	---	---	---	---	---	---	---
252:												
Clurde----------	0-3	*Loam	*CL-ML, CL	*A-4, A-6	0	0	100	80-100	75-100	60-100	20-35	5-15
	3-12	*Silt loam, loam, clay loam	*CL, SC	*A-4, A-6	0	0	100	75-100	70-100	45-85	25-40	10-20
	12-38	*Loam, gravelly sandy loam, gravelly loam, sandy clay loam, clay loam	*CL, SC	*A-6, A-2	0	0	100	55-100	40-95	15-80	25-40	10-20
	38-62	*Loam, gravelly sandy loam, gravelly loam, sandy clay loam, clay loam	*CL, SC	*A-6, A-2	0	0	100	55-100	40-95	15-80	25-40	10-20

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
253:												
Clurde----------	0-3	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	80-100	75-100	60-100	20-35	5-15
	3-12	*Silt loam, loam, clay loam	*CL, SC	*A-4, A-6	0	0	100	75-100	70-100	45-85	25-40	10-20
	12-38	*Loam, gravelly sandy loam, gravelly loam, sandy clay loam, clay loam	*CL, SC	*A-6, A-2	0	0	100	55-100	40-95	15-80	25-40	10-20
	38-62	*Loam, gravelly sandy loam, gravelly loam, sandy clay loam, clay loam	*CL, SC	*A-6, A-2	0	0	100	55-100	40-95	15-80	25-40	10-20
Toll------------	0-15	*Loamy sand	*SM, SC-SM	*A-2	0	0	95-100	90-100	60-75	15-30	15-20	NP-5
	15-40	*Loamy sand, coarse sand	*SM, SC-SM	*A-2, A-1	0	0	85-100	80-100	40-75	15-30	15-20	NP-5
	40-60	*Gravelly coarse sand, coarse sand, gravelly loamy sand	*SP-SM, SC-SM	*A-1, A-2	0	0	60-100	55-100	30-70	5-30	0-20	NP-5
254:												
Connleyhills----	0-4	*Ashy coarse sandy loam	*SC-SM, SC, SM	*A-2, A-4, A-1	0	0-10	85-100	75-100	50-65	25-45	15-30	NP-10
	4-11	*Ashy coarse sandy loam, gravelly ashy coarse sandy loam, ashy sandy loam, gravelly ashy sandy loam, cobbly ashy sandy loam, cobbly ashy coarse sandy loam	*SC-SM, SC	*A-2, A-1, A-4	0-10	10-15	80-100	65-90	35-75	15-45	20-30	5-10
	11-15	*Very cobbly ashy clay loam	*CL, SC, CH	*A-6, A-7, A-2	0-15	40-50	75-90	55-80	50-80	35-65	35-50	20-30
	15-22	*Very cobbly clay	*CH, SC	*A-7	10-15	25-50	80-100	60-85	60-85	40-80	50-70	30-45
	22-29	*Clay	*CH	*A-7	0	0-10	90-100	85-100	80-90	55-90	50-60	30-35
	29-32	*Very stony ashy clay loam, very cobbly ashy clay loam	*CL, CH, SC	*A-7, A-2	30-45	15-50	70-95	55-85	45-80	30-70	40-50	20-30
	32-42	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
255:												
Connleyhills	0-4	*Cobbly ashy loam	*ML, CL-ML, SM	*A-4	0	15-40	75-100	60-90	55-80	45-70	10-15	NP-5
	4-11	*Ashy coarse sandy loam, gravelly ashy coarse sandy loam, ashy sandy loam, gravelly ashy sandy loam, cobbly ashy sandy loam, cobbly ashy coarse sandy loam	*SC-SM, SC	*A-2, A-1, A-4	0-10	10-15	80-100	65-90	35-75	15-45	20-30	5-10
	11-15	*Very cobbly ashy clay loam	*CL, SC, CH	*A-6, A-7, A-2	0-15	40-50	75-90	55-80	50-80	35-65	35-50	20-30
	15-22	*Very cobbly clay	*CH, SC	*A-7	10-15	25-50	80-100	60-85	60-85	40-80	50-70	30-45
	22-29	*Clay	*CH	*A-7	0	0-10	90-100	85-100	80-90	55-90	50-60	30-35
	29-32	*Very stony ashy clay loam, very cobbly ashy clay loam	*CL, CH, SC	*A-7, A-2	30-45	15-50	70-95	55-85	45-80	30-70	40-50	20-30
	32-42	*Bedrock			---	---	---	---	---	---	---	---
256:												
Cooperdraw	0-2	*Very gravelly sandy loam	*SC, GW-GC	*A-2	0-10	0-15	40-65	35-60	20-40	10-20	25-35	10-15
	2-8	*Gravelly loam, very gravelly loam	*SC, GC	*A-2	0-10	0-15	45-75	40-70	25-50	15-35	30-35	10-15
	8-14	*Very cobbly clay loam	*GC, SC	*A-2	0-10	25-40	45-75	40-70	25-50	15-30	40-45	20-25
	14-24	*Very cobbly sandy loam	*SC-SM, GC-GM	*A-1, A-2	0-10	25-40	45-75	40-70	25-50	15-30	20-30	5-10
	24-60	*Cemented material			---	---	---	---	---	---	---	---
Fertaline	0-2	*Very cobbly sandy loam	*SC, SP-SC	*A-2, A-1, A-4	0-10	25-40	60-75	40-65	30-55	10-40	20-30	5-10
	2-7	*Gravelly sandy clay loam, gravelly sandy loam, very gravelly sandy loam	*SC, GW-GC	*A-2, A-6	0	10-25	55-90	35-85	25-75	10-50	25-35	10-20
	7-19	*Clay, gravelly clay, clay loam, gravelly clay loam	*CH, SC	*A-7, A-6	0	0-10	75-100	60-100	55-100	40-100	40-65	25-45
	19-26	*Gravelly sandy clay loam, sandy clay loam, clay loam, gravelly clay loam	*SC, CL	*A-2, A-7	0	0-10	70-100	55-100	40-95	15-80	30-45	15-25
	26-28	*Cemented material			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
257:												
Corral, low precipitation--	0-3	*Fine sandy loam	*SC, SC-SM, CL	*A-2, A-4	0	0-5	85-100	75-100	60-90	25-55	20-30	5-10
	3-5	*Sandy loam, loam	*SC, SC-SM, CL	*A-2, A-1, A-4	0	0-5	85-100	75-100	50-85	20-65	20-30	5-10
	5-13	*Sandy clay loam, clay loam, loam	*CL, SC	*A-6, A-4	0	0-5	85-100	75-100	60-90	40-75	30-45	10-25
	13-23	*Bedrock			---	---	---	---	---	---	---	---
258:												
Coztur----------	0-3	*Sandy loam	*SC, SC-SM	*A-2, A-4	0	0-5	90-100	85-100	70-90	25-40	20-30	5-10
	3-7	*Very cobbly clay loam	*GC, CL	*A-6, A-2, A-7	0-10	25-40	55-80	50-75	35-75	35-60	35-45	20-25
	7-13	*Clay loam	*CL	*A-7, A-6	0	0-10	90-100	85-100	80-100	75-80	35-45	20-25
	13-23	*Bedrock			---	---	---	---	---	---	---	---
259:												
Crackedground---	0-5	*Cobbly ashy loamy sand	*SM	*A-2	0-10	15-25	85-100	70-100	50-70	15-25	20-30	NP-5
	5-13	*Very cobbly ashy sandy loam	*SC-SM	*A-2, A-1, A-4	10-25	15-45	70-95	45-85	35-65	15-45	20-30	5-10
	13-38	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1	45-65	15-45	70-80	40-65	30-50	10-30	20-30	5-10
	38-43	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1, A-4	40-60	15-45	65-90	35-80	25-60	10-40	20-30	5-10
	43-53	*Bedrock			---	---	---	---	---	---	---	---
260:												
Crackedground---	0-5	*Cobbly ashy loamy sand	*SM	*A-2	0-10	15-25	85-100	70-100	50-70	15-25	20-30	NP-5
	5-13	*Very cobbly ashy sandy loam	*SC-SM	*A-2, A-1, A-4	10-25	15-45	70-95	45-85	35-65	15-45	20-30	5-10
	13-38	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1	45-65	15-45	70-80	40-65	30-50	10-30	20-30	5-10
	38-43	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1, A-4	40-60	15-45	65-90	35-80	25-60	10-40	20-30	5-10
	43-53	*Bedrock			---	---	---	---	---	---	---	---
261:												
Crackedground---	0-5	*Stony ashy loamy sand	*SM	*A-2	15-25	10-25	85-100	70-95	50-70	15-25	20-30	NP-5
	5-13	*Very cobbly ashy sandy loam	*SC-SM	*A-2, A-1, A-4	10-25	15-45	70-95	45-85	35-65	15-45	20-30	5-10
	13-38	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1	45-65	15-45	70-80	40-65	30-50	10-30	20-30	5-10
	38-43	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1, A-4	40-60	15-45	65-90	35-80	25-60	10-40	20-30	5-10
	43-53	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
261:												
Kunceider-------	0-5	*Very stony ashy sandy loam	*SC-SM, GP-GM, SM	*A-1, A-2	15-30	10-25	45-85	40-80	25-40	10-25	20-35	NP-10
	5-9	*Very cobbly ashy loamy sand	*SC-SM, GP-GM	*A-1	0	25-60	50-85	45-80	20-50	5-20	15-25	NP-5
	9-14	*Extremely gravelly ashy sandy loam, very cobbly ashy sandy loam, very cobbly ashy loamy sand, extremely gravelly ashy loamy sand	*GW-GM, GC, GW	*A-1, A-2	0	30-40	30-75	25-70	10-50	0-30	15-25	NP-10
	14-24	*Bedrock			---	---	---	---	---	---	---	---
262:												
Crackedground---	0-5	*Stony ashy loamy sand	*SM	*A-2	15-25	10-25	85-100	70-95	50-70	15-25	20-30	NP-5
	5-13	*Very cobbly ashy sandy loam	*SC-SM	*A-2, A-1, A-4	10-25	15-45	70-95	45-85	35-65	15-45	20-30	5-10
	13-38	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1	45-65	15-45	70-80	40-65	30-50	10-30	20-30	5-10
	38-43	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1, A-4	40-60	15-45	65-90	35-80	25-60	10-40	20-30	5-10
	43-53	*Bedrock			---	---	---	---	---	---	---	---
Milcan----------	0-2	*Cobbly ashy loamy sand	*SM, SP-SM, SC-SM	*A-1, A-2	0	15-25	75-95	65-90	40-65	10-25	15-25	NP-5
	2-10	*Ashy sandy loam, gravelly ashy sandy loam, ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-2, A-1, A-4	0	0	75-100	60-100	35-75	10-50	15-30	NP-10
	10-34	*Ashy loamy fine sand, ashy sandy loam, ashy fine sandy loam, gravelly ashy loamy fine sand, gravelly ashy sandy loam	*SM, SC-SM	*A-4, A-1	0	0	75-100	60-100	45-95	15-50	10-25	NP-5
	34-44	*Cemented material			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
263:												
Crackedground---	0-5	*Very cobbly ashy sandy loam	*SC-SM, SM	*A-2	10-15	25-45	65-90	50-85	50-70	15-25	20-30	NP-10
	5-13	*Very cobbly ashy sandy loam	*SC-SM	*A-2, A-1, A-4	10-25	15-45	70-95	45-85	35-65	15-45	20-30	5-10
	13-38	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1	45-65	15-45	70-80	40-65	30-50	10-30	20-30	5-10
	38-43	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1, A-4	40-60	15-45	65-90	35-80	25-60	10-40	20-30	5-10
	43-53	*Bedrock			---	---	---	---	---	---	---	---
Milcan----------	0-2	*Ashy sand	*SP-SM, SC-SM	*A-3, A-1, A-2	0	0	90-100	85-100	45-70	5-15	0-15	NP-5
	2-10	*Ashy sandy loam, gravelly ashy sandy loam, ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-2, A-1, A-4	0	0	75-100	60-100	35-75	10-50	15-30	NP-10
	10-34	*Ashy loamy fine sand, ashy sandy loam, ashy fine sandy loam, gravelly ashy loamy fine sand, gravelly ashy sandy loam	*SM, SC-SM	*A-4, A-1	0	0	75-100	60-100	45-95	15-50	10-25	NP-5
	34-44	*Cemented material			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
264:												
Crackedground---	0-5	*Gravelly ashy loamy sand	*SM	*A-2	0	0-10	65-80	55-75	50-70	15-25	20-30	NP-5
	5-13	*Very cobbly ashy sandy loam	*SC-SM	*A-2, A-1, A-4	10-25	15-45	70-95	45-85	35-65	15-45	20-30	5-10
	13-38	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1	45-65	15-45	70-80	40-65	30-50	10-30	20-30	5-10
	38-43	*Extremely stony ashy sandy loam	*SC, SP-SC	*A-2, A-1, A-4	40-60	15-45	65-90	35-80	25-60	10-40	20-30	5-10
	43-53	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
264:												
Wegert----------	0-2	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	55-80	50-75	25-50	10-20	20-30	NP-5
	2-6	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-2, A-1	0	0	80-100	75-100	35-70	10-30	20-25	NP-5
	6-27	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-1, A-2	0	0-15	80-100	75-100	35-70	10-30	15-30	NP-10
	27-31	*Extremely cobbly ashy loamy sand, very cobbly ashy loamy sand	*GP-GC, SC-SM	*A-1, A-2	0	55-80	35-100	20-100	10-70	5-20	15-25	NP-5
	31-41	*Bedrock			---	---	---	---	---	---	---	---
266:												
Deppy-----------	0-4	*Extremely stony loam	*GC, SM, GM, GC-GM	*A-2, A-4, A-1	45-60	15-30	40-70	35-60	25-55	20-40	25-35	5-10
	4-11	*Clay loam	*ML, CL	*A-6	0	0-5	90-100	80-95	75-90	60-80	35-40	10-15
	11-24	*Cemented material			---	---	---	---	---	---	---	---
	24-60	*Gravelly sandy loam, very gravelly sandy loam	*GC-GM, GW-GM	*A-1	0	0	40-65	30-60	15-40	10-25	10-20	NP-5
Rubble land-----	0-60	*Fragmental material			---	---	---	---	---	---	---	---
267:												
Deppy-----------	0-4	*Very cobbly loam	*SC, SM, GC-GM	*A-4, A-2	10-30	40-55	65-85	45-75	40-65	30-50	25-35	5-10
	4-11	*Clay loam	*ML, CL	*A-6	0	0-5	90-100	80-95	75-90	60-80	35-40	10-15
	11-24	*Cemented material			---	---	---	---	---	---	---	---
	24-60	*Gravelly sandy loam, very gravelly sandy loam	*GC-GM, GW-GM	*A-1	0	0	40-65	30-60	15-40	10-25	10-20	NP-5
Tumtum----------	0-3	*Cobbly loam	*SC, CL	*A-6, A-4	0	15-40	75-95	70-90	60-85	40-70	30-40	10-20
	3-14	*Clay loam	*CL	*A-6, A-7	0	0	90-100	85-100	70-100	55-80	35-45	20-25
	14-22	*Cemented material			---	---	---	---	---	---	---	---
	22-60	*Very gravelly sandy loam, gravelly sandy loam	*GP-GC, SC, GW-GM	*A-1, A-2	0	0	40-80	35-75	15-50	10-30	15-25	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
268:												
Deralallo---------	0-1	*Very gravelly ashy loam	*GC, GM, GC-GM	*A-2, A-4, A-1	0-10	10-15	40-70	30-50	20-50	20-40	25-35	5-10
	1-12	*Extremely cobbly ashy loam, extremely gravelly ashy loam	*GC, GP-GC	*A-2, A-6	0-20	30-65	20-50	15-45	15-45	10-40	30-40	10-20
	12-36	*Extremely gravelly ashy loam, very gravelly ashy sandy clay loam, very cobbly ashy sandy clay loam, very gravelly ashy clay loam	*GC, GP-GC	*A-2, A-7	0-20	20-45	20-65	15-60	10-55	10-45	35-45	15-25
	36-41	*Very gravelly ashy fine sandy loam	*GC, GC-GM	*A-2, A-1	0-20	0-45	40-65	35-60	25-45	20-30	20-30	5-10
	41-51	*Bedrock			---	---	---	---	---	---	---	---
Chesebro--------	0-4	*Very cobbly ashy loam	*GC, CL, GC-GM	*A-2, A-6, A-1	0-10	25-30	45-75	35-65	30-60	25-55	25-40	5-15
	4-24	*Very stony ashy loam, very cobbly ashy loam	*GC, GC-GM, CL	*A-2, A-1, A-6	0-30	10-65	35-85	30-80	25-75	20-60	25-40	5-15
	24-60	*Very gravelly ashy loam, very cobbly ashy clay loam, very gravelly ashy sandy clay loam, very cobbly ashy loam	*GC, CL	*A-2, A-7	0-15	10-60	35-85	30-80	25-80	20-65	30-45	15-25
269:												
Deralallo, north--	0-1	*Stony ashy very fine sand	*SM, SC-SM	*A-4, A-1	25-40	10-15	80-95	70-95	45-90	25-50	0-10	NP-5
	1-12	*Extremely cobbly ashy loam, extremely gravelly ashy loam	*GC, GP-GC	*A-2, A-6	0-20	30-65	20-50	15-45	15-45	10-40	30-40	10-20
	12-36	*Extremely gravelly ashy loam, very gravelly ashy sandy clay loam, very cobbly ashy sandy clay loam, very gravelly ashy clay loam	*GC, GP-GC	*A-2, A-7	0-20	20-45	20-65	15-60	10-55	10-45	35-45	15-25
	36-41	*Very gravelly ashy fine sandy loam	*GC, GC-GM	*A-2, A-1	0-20	0-45	40-65	35-60	25-45	20-30	20-30	5-10
	41-51	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
270:												
Derallo, south	0-1	*Very stony ashy fine sand	*SM, SC-SM	*A-2, A-1	30-45	15-30	80-95	70-90	45-80	15-35	0-10	NP-5
	1-12	*Extremely cobbly ashy loam, extremely gravelly ashy loam	*GC, GP-GC	*A-2, A-6	0-20	30-65	20-50	15-45	15-45	10-40	30-40	10-20
	12-36	*Extremely gravelly ashy loam, very gravelly ashy sandy clay loam, very cobbly ashy sandy clay loam, very gravelly ashy clay loam	*GC, GP-GC	*A-2, A-7	0-20	20-45	20-65	15-60	10-55	10-45	35-45	15-25
	36-41	*Very gravelly ashy fine sandy loam	*GC, GC-GM	*A-2, A-1	0-20	0-45	40-65	35-60	25-45	20-30	20-30	5-10
	41-51	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0-60	*Bedrock			---	---	---	---	---	---	---	---
271:												
Diablopeak	0-2	*Very cobbly fine sandy loam	*SC-SM, GC	*A-1, A-2	0-15	25-40	60-75	40-65	35-55	15-35	20-25	5-10
	2-6	*Cobbly fine sandy loam, gravelly fine sandy loam, very gravelly fine sandy loam	*SC-SM, SC	*A-4, A-1	0	10-25	65-95	50-85	45-80	20-50	20-30	5-10
	6-7	*Fine sandy loam, gravelly fine sandy loam, cobbly fine sandy loam	*SC-SM, CL	*A-4, A-2	0	0-15	80-100	75-90	65-85	25-55	20-30	5-10
	7-12	*Clay, cobbly clay loam, clay loam	*CL, CH	*A-7, A-6	0	0-15	85-100	80-100	70-100	50-95	40-60	25-40
	12-19	*Sandy clay, gravelly clay loam, clay, clay loam	*SC, CH	*A-7, A-2	0	0	70-95	55-85	50-80	35-70	35-55	20-30
	19-29	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
271:												
Yankeewell------	0-3	*Very cobbly sandy loam	*SC-SM, SC, SP-SC	*A-1, A-2	0-10	30-40	55-80	50-70	25-50	10-30	20-25	5-10
	3-6	*Gravelly loam, fine sandy loam, loam, cobbly sandy loam	*SC	*A-6, A-2	0-10	0-30	70-90	65-85	40-75	15-50	25-35	10-20
	6-11	*Clay loam, cobbly clay loam, gravelly clay loam	*CL, CH	*A-7, A-6	0-10	0-25	80-100	75-100	70-95	50-80	40-50	20-25
	11-25	*Cemented material			---	---	---	---	---	---	---	---
	25-35	*Bedrock			---	---	---	---	---	---	---	---
272:												
Drakesflat------	0-2	*Loam	*CL, SC	*A-6, A-4	0	0-15	85-95	75-90	65-85	40-70	30-40	10-20
	2-7	*Loam, cobbly loam	*CL, SC	*A-6, A-2	0-10	0-30	80-100	70-100	60-95	35-75	30-45	10-20
	7-16	*Cobbly clay, clay loam, cobbly clay loam	*CH, SC	*A-7	0-10	0-25	85-100	70-90	65-90	45-85	45-55	25-35
	16-22	*Cobbly clay loam, clay loam, gravelly loam, cobbly loam	*CL, GC	*A-6, A-7	0-10	0-25	70-100	55-90	45-90	40-75	35-50	15-30
	22-32	*Bedrock			---	---	---	---	---	---	---	---
273:												
Drakesflat------	0-2	*Loam	*CL, SC	*A-6, A-4	0	0-15	85-95	75-90	65-85	40-70	30-40	10-20
	2-7	*Loam, cobbly loam	*CL, SC	*A-6, A-2	0-10	0-30	80-100	70-100	60-95	35-75	30-45	10-20
	7-16	*Cobbly clay, clay loam, cobbly clay loam	*CH, SC	*A-7	0-10	0-25	85-100	70-90	65-90	45-85	45-55	25-35
	16-22	*Cobbly clay loam, clay loam, gravelly loam, cobbly loam	*CL, GC	*A-6, A-7	0-10	0-25	70-100	55-90	45-90	40-75	35-50	15-30
	22-32	*Bedrock			---	---	---	---	---	---	---	---
274:												
Dune land-------	0-60	*Fine sand	*SP-SM, SP, SM	*A-2, A-3	0	0	100	100	60-80	0-25	0-15	NP
275:												
Dune land-------	0-60	*Fine sand	*SP-SM, SP, SM	*A-2, A-3	0	0	100	100	60-80	0-25	0-15	NP

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
275:												
Fossilake-------	0-1	*Ashy fine sandy loam	*SC-SM, SM	*A-4	0	0	100	100	90-100	40-55	15-25	NP-10
	1-3	*Ashy very fine sandy loam	*CL-ML, SC-SM	*A-4	0	0	100	100	90-100	40-60	20-30	5-10
	3-15	*Ashy silt loam, ashy sandy clay loam, ashy very fine sandy loam	*CL, SC-SM	*A-6, A-4	0	0	100	100	80-100	45-95	20-35	5-20
	15-31	*Stratified ashy loamy sand to ashy loam	*SC-SM, CL	*A-4, A-6, A-2	0	0	100	100	60-100	20-80	15-35	5-15
	31-43	*Ashy loam, ashy clay loam	*CL	*A-6	0	0	100	100	90-100	60-85	30-40	15-25
	43-66	*Ashy silt loam, ashy loam	*CL	*A-6, A-4	0	0	100	100	90-100	55-95	25-35	10-20
Salhouse--------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-2, A-4	0	0	95-100	90-100	60-80	20-40	0-20	NP-5
	5-42	*Ashy loamy sand, ashy sand	*SC-SM, SP-SM	*A-2, A-1	0	0	95-100	90-100	50-75	5-30	0-20	NP-5
	42-61	*Ashy silt loam, ashy loam, ashy sandy loam, silt loam, loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	95-100	90-100	55-100	30-100	20-35	5-20
276:												
Dune land-------	0-60	*Fine sand	*SP-SM, SP, SM	*A-2, A-3	0	0	100	100	60-80	0-25	0-15	NP
Morehouse-------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15
277:												
Dune land-------	0-60	*Fine sand	*SP-SM, SP, SM	*A-2, A-3	0	0	100	100	60-80	0-25	0-15	NP
Salhouse--------	0-5	*Ashy sand	*SP-SM, SC-SM	*A-3, A-2, A-1	0	0	95-100	90-100	50-70	5-15	0-15	NP-5
	5-42	*Ashy loamy sand, ashy sand	*SC-SM, SP-SM	*A-2, A-1	0	0	95-100	90-100	50-75	5-30	0-20	NP-5
	42-61	*Ashy silt loam, ashy loam, ashy sandy loam, silt loam, loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	95-100	90-100	55-100	30-100	20-35	5-20

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
278:												
Dunres----------	0-4	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1, A-4	0-10	15-40	80-100	75-90	45-75	20-50	20-30	5-10
	4-8	*Ashy sandy clay loam, cobbly ashy sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0-30	85-100	80-100	50-80	20-55	30-45	15-25
	8-19	*Clay, cobbly clay	*CH, SC	*A-7	0	0-30	85-100	80-100	60-100	45-95	50-65	30-40
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-56	*Cemented material			---	---	---	---	---	---	---	---
	56-60	*Bedrock			---	---	---	---	---	---	---	---
279:												
Dunres, thick surface--------	0-4	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1, A-4	0-10	15-40	80-100	75-90	45-75	20-50	20-30	5-10
	4-8	*Ashy sandy clay loam, cobbly ashy sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0-30	85-100	80-100	50-80	20-55	30-45	15-25
	8-19	*Clay, cobbly clay	*CH, SC	*A-7	0	0-30	85-100	80-100	60-100	45-95	50-65	30-40
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-56	*Cemented material			---	---	---	---	---	---	---	---
	56-60	*Bedrock			---	---	---	---	---	---	---	---
280:												
Dunres----------	0-4	*Stony ashy fine sandy loam	*SC, SC-SM, CL	*A-2, A-4	15-30	0-15	80-100	70-90	55-85	30-55	20-30	5-10
	4-8	*Ashy sandy clay loam, cobbly ashy sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0-30	85-100	80-100	50-80	20-55	30-45	15-25
	8-19	*Clay, cobbly clay	*CH, SC	*A-7	0	0-30	85-100	80-100	60-100	45-95	50-65	30-40
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-56	*Cemented material			---	---	---	---	---	---	---	---
	56-60	*Bedrock			---	---	---	---	---	---	---	---
281:												
Dunres----------	0-4	*Cobbly ashy fine sandy loam	*SC, SC-SM, CL	*A-2, A-4	0-5	15-45	80-100	75-90	55-85	30-55	20-30	5-10
	4-8	*Ashy sandy clay loam, cobbly ashy sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0-30	85-100	80-100	50-80	20-55	30-45	15-25
	8-19	*Clay, cobbly clay	*CH, SC	*A-7	0	0-30	85-100	80-100	60-100	45-95	50-65	30-40
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-56	*Cemented material			---	---	---	---	---	---	---	---
	56-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
281:												
Henkle----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Gravelly ashy coarse sandy loam	*SC-SM, SM	*A-2	0	0	80-100	75-100	55-70	25-30	10-15	NP-5
	6-16	*Gravelly ashy loam, very cobbly ashy fine sandy loam, very cobbly ashy loam, gravelly ashy fine sandy loam	*GC-GM, GM	*A-4, A-1, A-2	0-10	0-40	55-80	50-70	40-65	25-50	10-15	NP-5
	16-20	*Extremely bouldery ashy loam, extremely stony ashy sandy loam, very bouldery ashy loam, very bouldery ashy sandy loam, extremely stony ashy loam	*GC-GM, GM	*A-4, A-2, A-1	40-75	10-45	65-85	60-85	40-80	20-70	10-15	NP-5
	20-30	*Bedrock			---	---	---	---	---	---	---	---
282:												
Dunres----------	0-4	*Cobbly ashy fine sandy loam	*SC, CL, SC-SM	*A-2, A-4	0-5	15-45	80-100	75-90	55-85	30-55	20-30	5-10
	4-8	*Ashy sandy clay loam, cobbly ashy sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0-30	85-100	80-100	50-80	20-55	30-45	15-25
	8-19	*Clay, cobbly clay	*CH, SC	*A-7	0	0-30	85-100	80-100	60-100	45-95	50-65	30-40
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-56	*Cemented material			---	---	---	---	---	---	---	---
	56-60	*Bedrock			---	---	---	---	---	---	---	---
Moonbeam--------	0-3	*Stony ashy fine sandy loam	*SC-SM, SM	*A-4, A-2	15-30	0-15	70-95	65-90	50-75	35-45	25-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
283:												
Dunres----------	0-4	*Very cobbly ashy loam	*SC, GC-GM, CL	*A-4, A-2	0-10	25-55	60-90	50-70	45-70	30-60	20-35	5-15
	4-8	*Ashy sandy clay loam, cobbly ashy sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0-30	85-100	80-100	50-80	20-55	30-45	15-25
	8-19	*Clay, cobbly clay	*CH, SC	*A-7	0	0-30	85-100	80-100	60-100	45-95	50-65	30-40
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-56	*Cemented material			---	---	---	---	---	---	---	---
	56-60	*Bedrock			---	---	---	---	---	---	---	---
Moonbeam--------	0-3	*Extremely cobbly ashy loam	*GC, GC-GM	*A-2, A-1	0-25	30-55	30-55	25-50	25-50	20-40	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Nuss------------	0-3	*Extremely stony sandy loam	*GP-GC, GC	*A-1, A-2	30-55	15-30	35-50	30-45	10-35	5-20	20-30	5-10
	3-17	*Clay loam, loam, gravelly loam, cobbly loam	*CL, GC	*A-6, A-2, A-7	0-10	0-20	55-95	50-90	40-90	30-70	30-45	10-25
	17-27	*Bedrock			---	---	---	---	---	---	---	---
284:												
Dunres----------	0-4	*Very cobbly ashy loam	*SC, CL, GC-GM	*A-4, A-2	0-10	25-55	60-90	50-70	45-70	30-60	20-35	5-15
	4-8	*Ashy sandy clay loam, cobbly ashy sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0-30	85-100	80-100	50-80	20-55	30-45	15-25
	8-19	*Clay, cobbly clay	*CH, SC	*A-7	0	0-30	85-100	80-100	60-100	45-95	50-65	30-40
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-56	*Cemented material			---	---	---	---	---	---	---	---
	56-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
284:												
Murlose	0-3	*Gravelly ashy sandy loam	*SC-SM, GC-GM	*A-1, A-2	0	0-15	55-80	50-75	30-50	15-30	20-30	5-10
	3-11	*Cobbly ashy sandy loam	*SC, SC-SM, CL	*A-4, A-6, A-2	0	15-30	65-90	60-90	55-85	25-70	20-35	5-15
	11-19	*Cobbly ashy sandy clay loam, cobbly ashy clay loam	*SC, CL	*A-6, A-2	0	20-35	75-90	70-90	55-85	25-70	30-45	10-25
	19-22	*Cemented material			---	---	---	---	---	---	---	---
	22-32	*Bedrock			---	---	---	---	---	---	---	---
Nuss	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-2	*Extremely stony ashy sandy loam	*GC, GM, GP-GC	*A-2, A-1	45-70	25-40	20-65	15-60	15-50	10-30	25-35	5-10
	2-8	*Cobbly ashy clay loam, cobbly ashy loam	*CL, GM	*A-6	0-15	15-45	75-90	70-85	60-80	40-70	35-45	15-20
	8-15	*Extremely cobbly ashy sandy loam, extremely cobbly ashy loam	*GC	*A-2, A-6	0-15	45-55	35-50	30-45	20-45	15-40	25-35	10-15
	15-19	*Bedrock			---	---	---	---	---	---	---	---
	19-29	*Bedrock			---	---	---	---	---	---	---	---
285:												
Dunres	0-4	*Very cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-10	25-50	60-90	50-85	30-55	15-30	20-30	5-10
	4-8	*Ashy sandy clay loam, cobbly ashy sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0-30	85-100	80-100	50-80	20-55	30-45	15-25
	8-19	*Clay, cobbly clay	*CH, SC	*A-7	0	0-30	85-100	80-100	60-100	45-95	50-65	30-40
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-56	*Cemented material			---	---	---	---	---	---	---	---
	56-60	*Bedrock			---	---	---	---	---	---	---	---
Moonbeam	0-3	*Extremely stony ashy sandy loam	*GC-GM, SC	*A-1, A-2	40-55	25-55	40-80	20-60	20-40	15-25	20-30	5-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
286:												
Dunres----------	0-4	*Very cobbly ashy loam	*SC, CL, GC-GM	*A-4, A-2	0-10	25-55	60-90	50-70	45-70	30-60	20-35	5-15
	4-8	*Ashy sandy clay loam, cobbly ashy sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0-30	85-100	80-100	50-80	20-55	30-45	15-25
	8-19	*Clay, cobbly clay	*CH, SC	*A-7	0	0-30	85-100	80-100	60-100	45-95	50-65	30-40
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-56	*Cemented material			---	---	---	---	---	---	---	---
	56-60	*Bedrock			---	---	---	---	---	---	---	---
Norcross, cobbly ashy loam surface---	0-3	*Cobbly ashy loam	*ML, GC-GM	*A-4	0-10	15-30	70-95	65-90	60-85	40-60	25-45	5-15
	3-6	*Cobbly ashy loam, very cobbly ashy clay loam	*CL, GC	*A-7, A-6, A-2	0-15	15-30	50-95	45-90	45-90	35-70	35-45	15-20
	6-19	*Clay, clay loam	*CH, CL	*A-7	0	0-10	90-100	85-100	70-100	70-95	45-70	30-50
	19-21	*Cemented material			---	---	---	---	---	---	---	---
	21-31	*Bedrock			---	---	---	---	---	---	---	---
Norcross, very cobbly ashy fine sandy loam surface---	0-3	*Very cobbly ashy fine sandy loam	*SM, GC	*A-2, A-6	0-25	25-45	55-75	50-70	30-60	20-45	30-40	10-15
	3-6	*Cobbly ashy loam, very cobbly ashy clay loam	*CL, GC	*A-7, A-6, A-2	0-15	15-30	50-95	45-90	45-90	35-70	35-45	15-20
	6-19	*Clay, clay loam	*CH, CL	*A-7	0	0-10	90-100	85-100	70-100	70-95	45-70	30-50
	19-21	*Cemented material			---	---	---	---	---	---	---	---
	21-31	*Bedrock			---	---	---	---	---	---	---	---
287:												
Edemaps---------	0-3	*Gravelly sandy loam	*SC, SC-SM, SM	*A-2	0	0-15	70-80	65-75	40-70	15-40	25-35	5-10
	3-10	*Sandy loam, loam, clay loam	*SC, CL	*A-6, A-2, A-7	0	0-15	80-100	75-100	50-90	15-80	30-45	10-20
	10-19	*Gravelly clay loam, clay loam	*CH, CL	*A-7	0	0-15	65-100	60-100	60-90	50-80	45-55	25-30
	19-24	*Gravelly clay loam, clay loam	*CH, CL	*A-7	0	0-15	65-100	60-100	60-90	50-80	45-55	25-30
	24-26	*Cemented material			---	---	---	---	---	---	---	---
	26-30	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
287:												
Pernty	0-3	*Gravelly sandy loam	*SC-SM, SC	*A-1, A-2	0	0-15	60-80	55-75	35-50	15-30	20-30	5-10
	3-12	*Very cobbly clay loam, very cobbly loam	*GC	*A-7, A-2	0-15	30-50	55-75	50-70	45-60	35-50	40-50	20-25
	12-22	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0-60	*Bedrock			---	---	---	---	---	---	---	---
288:												
Embal	0-2	*Ashy sandy loam	*SM, SC-SM	*A-2, A-4	0	0	90-100	85-100	55-70	20-40	20-35	5-10
	2-6	*Ashy fine sandy loam, ashy sandy loam, ashy silt loam	*SC, SC-SM	*A-2, A-4	0	0	85-100	80-100	45-80	30-70	20-30	5-10
	6-25	*Ashy fine sandy loam, ashy sandy loam	*SC, SC-SM	*A-2, A-4	0	0	80-100	75-100	40-80	30-70	20-30	5-10
	25-34	*Cobbly ashy coarse sandy loam, gravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1, A-4	0	0-25	35-100	30-100	15-70	15-40	20-30	5-10
	34-42	*Gravelly ashy sandy loam, very paragravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1	0	0-15	65-95	60-90	35-65	15-35	20-30	5-10
	42-60	*Cemented gravelly ashy sandy loam, cemented very paragravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1	0	0-15	65-95	60-90	35-65	15-35	20-30	5-10
289:												
Embal	0-2	*Gravelly ashy sandy loam	*SC-SM, SM	*A-2, A-1	0	0-15	70-90	60-75	35-50	15-35	10-15	NP-5
	2-6	*Ashy fine sandy loam, ashy sandy loam, ashy silt loam	*SC, SC-SM	*A-2, A-4	0	0	85-100	80-100	45-80	30-70	20-30	5-10
	6-25	*Ashy fine sandy loam, ashy sandy loam	*SC, SC-SM	*A-2, A-4	0	0	80-100	75-100	40-80	30-70	20-30	5-10
	25-34	*Cobbly ashy coarse sandy loam, gravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1, A-4	0	0-25	35-100	30-100	15-70	15-40	20-30	5-10
	34-42	*Gravelly ashy sandy loam, very paragravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1	0	0-15	65-95	60-90	35-65	15-35	20-30	5-10
	42-60	*Cemented gravelly ashy sandy loam, cemented very paragravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1	0	0-15	65-95	60-90	35-65	15-35	20-30	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
289:												
Paulina	0-22	*Very gravelly ashy sandy clay loam	*GM, GC-GM, GW-GM	*A-1, A-2	0	0	30-50	25-45	15-45	5-30	10-15	NP-5
	22-60	*Extremely cobbly ashy sandy clay loam, extremely cobbly sandy clay loam	*GM, GC-GM, GP-GM	*A-1	0-25	30-55	25-45	20-40	15-35	5-20	10-15	NP-5
290:												
Enko	0-2	*Sandy loam	*SC-SM, SM	*A-2, A-4	0	0	80-100	75-100	50-70	30-40	15-30	NP-10
	2-11	*Sandy loam, fine sandy loam, loam	*SC-SM, SC	*A-2, A-1	0	0	80-100	75-100	40-60	20-30	15-30	5-10
	11-35	*Sandy loam, loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC-SM, CL	*A-4, A-2	0	0	65-100	60-100	55-75	25-75	20-30	5-10
	35-60	*Paragravelly sandy loam, sandy loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC, SP-SC	*A-2, A-1, A-4	0	0	60-100	55-100	30-50	10-50	20-30	5-10
291:												
Enko	0-2	*Loam	*CL	*A-6, A-4	0	0	80-100	75-100	65-95	50-75	25-35	10-15
	2-11	*Sandy loam, fine sandy loam, loam	*SC-SM, SC	*A-2, A-1	0	0	80-100	75-100	40-60	20-30	15-30	5-10
	11-35	*Sandy loam, loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC-SM, CL	*A-4, A-2	0	0	65-100	60-100	55-75	25-75	20-30	5-10
	35-60	*Paragravelly sandy loam, sandy loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC, SP-SC	*A-2, A-1, A-4	0	0	60-100	55-100	30-50	10-50	20-30	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
292:												
Enko------------	0-2	*Loamy sand	*SC-SM	*A-1, A-2	0	0	80-100	75-100	40-50	20-30	15-25	NP-5
	2-11	*Sandy loam, fine sandy loam, loam	*SC-SM, SC	*A-2, A-1	0	0	80-100	75-100	40-60	20-30	15-30	5-10
	11-35	*Sandy loam, loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC-SM, CL	*A-4, A-2	0	0	65-100	60-100	55-75	25-75	20-30	5-10
	35-60	*Paragravelly sandy loam, sandy loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC, SP-SC	*A-2, A-1, A-4	0	0	60-100	55-100	30-50	10-50	20-30	5-10
293:												
Enko------------	0-2	*Loamy sand	*SC-SM	*A-1, A-2	0	0	80-100	75-100	40-50	20-30	15-25	NP-5
	2-11	*Sandy loam, fine sandy loam, loam	*SC-SM, SC	*A-2, A-1	0	0	80-100	75-100	40-60	20-30	15-30	5-10
	11-35	*Sandy loam, loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC-SM, CL	*A-4, A-2	0	0	65-100	60-100	55-75	25-75	20-30	5-10
	35-60	*Paragravelly sandy loam, sandy loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC, SP-SC	*A-2, A-1, A-4	0	0	60-100	55-100	30-50	10-50	20-30	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
293:												
Catlow	0-3	*Gravelly loam	*SC-SM, GC-GM, SC	*A-4, A-2	0-3	0-5	65-85	55-75	40-65	30-50	20-30	5-10
	3-21	*Extremely cobbly fine sandy loam, very stony sandy clay loam, very gravelly sandy clay loam, gravelly sandy loam, very gravelly sandy loam	*SC, SW-SC	*A-2, A-6, A-1	0-15	10-30	55-85	20-75	10-60	5-40	20-35	5-15
	21-30	*Extremely gravelly sandy loam, very cobbly sandy loam, extremely cobbly loamy coarse sand, very gravelly sandy loam, very cobbly loamy sand	*GP-GC, GC, GP	*A-1, A-2	0-15	10-30	35-70	10-55	5-50	0-35	15-25	5-10
	30-60	*Extremely gravelly sandy loam, extremely cobbly coarse sand, extremely cobbly loamy coarse sand, extremely gravelly sand, very gravelly sand	*GP-GM, GP, SC-SM	*A-1, A-2	0-15	25-45	45-80	10-55	5-45	0-30	5-20	NP-5
294:												
Enko	0-2	*Gravelly loamy sand	*SC-SM, SM	*A-1	0	0	70-100	50-75	30-50	15-20	15-25	NP-5
	2-11	*Sandy loam, fine sandy loam, loam	*SC-SM, SC	*A-2, A-1	0	0	80-100	75-100	40-60	20-30	15-30	5-10
	11-35	*Sandy loam, loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC-SM, CL	*A-4, A-2	0	0	65-100	60-100	55-75	25-75	20-30	5-10
	35-60	*Paragravelly sandy loam, sandy loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC, SP-SC	*A-2, A-1, A-4	0	0	60-100	55-100	30-50	10-50	20-30	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
294:												
McConnel--------	0-1	*Gravelly loamy sand	*SM, SC-SM	*A-1, A-2	0	0-10	60-80	55-75	30-55	15-25	0-25	NP-5
	1-12	*Sandy loam, loam	*SC-SM, SM, ML, CL-ML	*A-2, A-1, A-4	0	0	80-100	75-95	50-85	25-70	15-25	NP-10
	12-18	*Gravelly sandy loam, gravelly loamy sand, very gravelly sand, extremely gravelly sand, very gravelly sandy loam	*GC-GM, SC-SM, SM, GM	*A-1, A-2	0	0	25-75	20-70	10-50	5-30	15-25	NP-10
	18-60	*Very gravelly sand, extremely cobbly sand, extremely gravelly sand, very gravelly loamy sand, extremely gravelly coarse sand	*GP-GM	*A-1	0	0-15	15-55	10-50	5-30	5-10	10-20	NP-5
295:												
Erakatak--------	0-3	*Cobbly ashy clay loam	*CL, SC	*A-7, A-6	0-5	15-30	75-95	70-90	60-80	40-65	40-50	20-25
	3-11	*Very gravelly ashy loam, very cobbly ashy loam, very gravelly ashy clay loam, very cobbly ashy clay loam	*GC, CL	*A-2	0-10	10-40	50-80	25-70	25-70	15-55	30-45	10-20
	11-20	*Very cobbly ashy clay loam	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	45-55	25-30
	20-27	*Very cobbly ashy clay, very cobbly clay	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	50-60	30-35
	27-37	*Bedrock			---	---	---	---	---	---	---	---
296:												
Erakatak--------	0-3	*Cobbly ashy loam	*SC, SC-SM, CL	*A-6, A-2	0-5	15-30	75-95	70-90	55-75	35-55	20-35	5-15
	3-11	*Very gravelly ashy loam, very cobbly ashy loam, very gravelly ashy clay loam, very cobbly ashy clay loam	*GC, CL	*A-2	0-10	10-40	50-80	25-70	25-70	15-55	30-45	10-20
	11-20	*Very cobbly ashy clay loam	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	45-55	25-30
	20-27	*Very cobbly ashy clay, very cobbly clay	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	50-60	30-35
	27-37	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
296:												
Carryback-------	0-2	*Very cobbly loam	*SC, GC	*A-4	5-25	30-55	70-85	60-75	50-65	40-50	25-35	10-15
	2-8	*Silty clay loam, clay loam	*CL	*A-6	0-5	0-10	85-100	75-100	70-100	55-90	35-45	15-25
	8-15	*Clay, silty clay	*CH	*A-7	0	0-10	85-100	75-100	70-100	65-95	50-65	30-40
	15-33	*Loam, silty clay loam, silt loam	*CL	*A-6, A-4	0	0-10	95-100	85-100	75-95	60-90	25-35	10-15
	33-43	*Bedrock			---	---	---	---	---	---	---	---
297:												
Erakatak--------	0-3	*Very stony ashy loam	*GC, GC-GM, SC	*A-4, A-1, A-6	25-40	10-25	50-80	45-70	30-65	20-45	20-35	5-15
	3-11	*Very gravelly ashy loam, very cobbly ashy loam, very gravelly ashy clay loam, very cobbly ashy clay loam	*GC, CL	*A-2	0-10	10-40	50-80	25-70	25-70	15-55	30-45	10-20
	11-20	*Very cobbly ashy clay loam	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	45-55	25-30
	20-27	*Very cobbly ashy clay, very cobbly clay	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	50-60	30-35
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Leevan, south---	0-3	*Very cobbly loam	*SC, GC	*A-6, A-2	0-10	30-40	55-80	50-75	35-65	25-50	30-40	10-20
	3-7	*Very cobbly loam, gravelly clay loam	*SC, GC, CL	*A-6, A-7, A-2	0-10	10-35	55-90	50-85	40-80	30-65	35-45	15-25
	7-16	*Very gravelly clay loam, gravelly clay	*GC, CH	*A-7, A-2	0	10-15	55-80	50-75	45-70	35-65	45-60	25-35
	16-31	*Very cobbly clay, very gravelly clay	*CH, GC	*A-7, A-2	0	30-45	45-80	40-75	25-70	20-65	50-70	30-45
	31-41	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
298:												
Erakatak--------	0-3	*Very stony ashy clay loam	*GC	*A-7, A-2	25-40	10-25	50-80	45-70	30-65	20-55	40-50	20-25
	3-11	*Very gravelly ashy loam, very cobbly ashy loam, very gravelly ashy clay loam, very cobbly ashy clay loam	*GC, CL	*A-2	0-10	10-40	50-80	25-70	25-70	15-55	30-45	10-20
	11-20	*Very cobbly ashy clay loam	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	45-55	25-30
	20-27	*Very cobbly ashy clay, very cobbly clay	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	50-60	30-35
	27-37	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
298:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
299:												
Erakatak--------	0-3	*Very stony ashy loam	*GC, GC-GM, SC	*A-6, A-1	25-40	10-25	50-80	45-70	30-65	20-45	20-35	5-15
	3-11	*Very gravelly ashy loam, very cobbly ashy loam, very gravelly ashy clay loam, very cobbly ashy clay loam	*GC, CL	*A-2	0-10	10-40	50-80	25-70	25-70	15-55	30-45	10-20
	11-20	*Very cobbly ashy clay loam	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	45-55	25-30
	20-27	*Very cobbly ashy clay, very cobbly clay	*GC, CH	*A-2, A-7	0-15	25-40	50-80	40-70	30-70	20-60	50-60	30-35
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Rubble land-----	0-60	*Fragmental material			---	---	---	---	---	---	---	---
300:												
Felcher, south--	0-4	*Very cobbly sandy loam	*SC-SM, SM, SC	*A-1, A-2	10-15	25-40	65-90	50-85	30-55	15-30	15-30	NP-10
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Camptank--------	0-3	*Extremely gravelly fine sandy loam	*GC, GP-GC	*A-2	0-5	0-30	20-40	15-35	15-25	10-15	20-30	5-10
	3-6	*Sandy loam	*SC, SC-SM	*A-4	0	0	80-100	75-100	70-90	40-50	20-30	5-10
	6-10	*Clay, clay loam	*CH	*A-7	0	0	80-100	75-100	70-95	55-70	45-60	25-40
	10-17	*Clay loam	*CL, CH	*A-7, A-6	0	0	80-100	75-100	70-95	55-70	40-50	20-30
	17-34	*Very stony fine sandy loam, very cobbly fine sandy loam, very gravelly sandy loam	*SC-SM, GC-GM, SC	*A-2, A-1	10-30	5-30	50-85	45-75	35-65	20-35	20-30	5-10
	34-41	*Very gravelly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam	*GM, SC-SM	*A-1, A-2	0-15	0-25	35-70	30-65	30-60	20-30	20-25	NP-5
	41-51	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
300:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
301:												
Felcher, south--	0-4	*Very cobbly loam	*SC, CL	*A-6, A-2	10-15	25-40	65-90	50-85	40-75	25-60	25-35	10-20
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Fitzwater, north	0-3	*Very stony loam	*GC, GC-GM	*A-4, A-6, A-2	25-45	0-15	55-80	45-70	40-65	30-50	21-32	4-13
	3-7	*Very gravelly sandy loam	*GP-GC, GC	*A-1, A-2	0-10	10-25	35-65	30-60	15-35	10-20	20-30	5-10
	7-33	*Extremely gravelly sandy loam, extremely cobbly clay loam, extremely cobbly loam, very gravelly loam, extremely gravelly loam, very cobbly loam, very cobbly clay loam	*GP-GC, GP, GC	*A-2, A-6	0-25	10-55	20-65	15-60	5-60	0-50	25-40	10-20
	33-60	*Extremely gravelly sandy loam, extremely cobbly loam, extremely stony sandy loam, extremely stony loam, extremely cobbly sandy loam	*GP-GC, GP, GC	*A-2, A-6	0-50	25-65	20-70	15-65	5-65	0-50	25-35	10-20
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
302:												
Felcher, south--	0-4	*Very cobbly sandy loam	*SC-SM, SM, SC	*A-1, A-2	10-15	25-40	65-90	50-85	30-55	15-30	15-30	NP-10
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Oreneva, north--	0-2	*Cobbly fine sandy loam	*SC-SM, SC	*A-4, A-2	0	15-30	75-90	70-80	50-75	30-45	20-30	5-10
	2-10	*Clay loam, loam	*CL, SC	*A-6, A-4	0	0-10	80-100	75-100	60-100	40-80	30-40	10-20
	10-21	*Very gravelly loam, very gravelly clay loam	*GC	*A-2, A-6	0	0-25	40-55	35-50	25-50	20-40	30-40	10-20
	21-31	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
303:												
Felcher, south--	0-4	*Extremely stony loam	*GC	*A-2, A-6	40-55	15-40	40-75	30-70	25-50	20-45	25-35	10-20
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Riddleranch-----	0-8	*Very stony loam	*CL, GC-GM	*A-4, A-6	25-45	15-30	55-85	50-80	45-75	40-60	25-35	5-15
	8-28	*Very cobbly loam, extremely cobbly loam, extremely stony loam, very gravelly clay loam, very gravelly loam	*GC, CL, SC, GW-GC	*A-2, A-6	10-45	25-55	25-90	20-85	15-65	10-60	30-40	10-20
	28-38	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
304:												
Felcher, south--	0-4	*Very cobbly sandy loam	*SC-SM, SM, SC	*A-1, A-2	10-15	25-40	65-90	50-85	30-55	15-30	15-30	NP-10
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
305:												
Felcher, south--	0-4	*Very stony sandy loam	*SC-SM, SM, SC	*A-1, A-2	20-30	15-25	65-85	40-80	30-55	15-30	15-30	NP-10
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
306:												
Felcher, south--	0-4	*Very stony clay loam	*GC	*A-2	15-30	10-25	50-70	45-65	35-55	25-40	40-45	20-25
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
307:												
Felcher, south--	0-4	*Extremely stony sandy clay loam	*SC, GC	*A-2	30-60	15-30	30-75	20-65	20-55	10-35	35-45	15-25
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Brezniak--------	0-3	*Cobbly loam	*CL	*A-6, A-4	0-10	15-30	80-95	75-90	65-90	50-65	30-40	10-15
	3-10	*Clay, clay loam	*MH, ML, CH	*A-7	0-15	0-5	95-100	90-100	85-95	60-90	45-60	20-35
	10-20	*Bedrock			---	---	---	---	---	---	---	---
308:												
Felcher, south--	0-4	*Very cobbly loam	*SC, CL	*A-6, A-2	10-15	25-40	65-90	50-85	40-75	25-60	25-35	10-20
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Westbutte, north	0-3	*Extremely stony loam	*GM, GC, GP-GC	*A-2	30-55	10-45	25-50	20-45	10-30	5-25	30-40	10-15
	3-11	*Very cobbly loam, extremely cobbly clay loam, very cobbly clay loam, extremely cobbly loam, very stony loam	*GC, SC	*A-6, A-7, A-2	0-50	30-55	30-85	25-80	25-60	20-50	30-45	10-20
	11-21	*Extremely cobbly clay loam, very cobbly loam, very stony loam, very cobbly clay loam, extremely cobbly loam	*GC	*A-6, A-2, A-7	0-50	30-55	30-65	25-60	25-60	20-50	30-45	10-20
	21-31	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
309:												
Firelake--------	0-2	*Very gravelly loamy coarse sand	*SP-SM, SC-SM	*A-1	0	0-15	60-80	40-60	20-40	5-20	10-20	NP-5
	2-7	*Gravelly coarse sandy loam, gravelly sandy loam, sandy loam	*SC-SM, SM, SC	*A-2, A-4, A-1	0	0	70-95	55-85	30-65	15-45	15-25	NP-10
	7-17	*Bedrock			---	---	---	---	---	---	---	---
Enko------------	0-2	*Sandy loam	*SC-SM, SM	*A-2, A-4	0	0	80-100	75-100	50-70	30-40	15-30	NP-10
	2-11	*Sandy loam, fine sandy loam, loam	*SC-SM, SC	*A-2, A-1	0	0	80-100	75-100	40-60	20-30	15-30	5-10
	11-35	*Sandy loam, loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC-SM, CL	*A-4, A-2	0	0	65-100	60-100	55-75	25-75	20-30	5-10
	35-60	*Paragravelly sandy loam, sandy loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC, SP-SC	*A-2, A-1, A-4	0	0	60-100	55-100	30-50	10-50	20-30	5-10
310:												
Fitzwater, south	0-3	*Extremely stony loam	*GC, GC-GM	*A-2, A-6, A-1	30-45	10-30	35-65	35-55	30-50	20-40	20-30	5-15
	3-7	*Very gravelly sandy loam	*GP-GC, GC	*A-1, A-2	0-10	10-25	35-65	30-60	15-35	10-20	20-30	5-10
	7-33	*Extremely gravelly sandy loam, extremely cobbly clay loam, extremely cobbly loam, very gravelly loam, extremely gravelly loam, very cobbly loam, very cobbly clay loam	*GP-GC, GP, GC	*A-2, A-6	0-25	10-55	20-65	15-60	5-60	0-50	25-40	10-20
	33-60	*Extremely gravelly sandy loam, extremely cobbly loam, extremely stony sandy loam, extremely stony loam, extremely cobbly sandy loam	*GP-GC, GP, GC	*A-2, A-6	0-50	25-65	20-70	15-65	5-65	0-50	25-35	10-20

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
311:												
Fitzwater, north	0-3	*Very cobbly loam	*GC, GC-GM	*A-4, A-6, A-2	25-45	0-15	55-80	45-70	40-65	30-50	20-35	5-15
	3-7	*Very gravelly sandy loam	*GP-GC, GC	*A-1, A-2	0-10	10-25	35-65	30-60	15-35	10-20	20-30	5-10
	7-33	*Extremely gravelly sandy loam, extremely cobbly clay loam, extremely cobbly loam, very gravelly loam, extremely gravelly loam, very cobbly loam, very cobbly clay loam	*GP-GC, GP, GC	*A-2, A-6	0-25	10-55	20-65	15-60	5-60	0-50	25-40	10-20
	33-60	*Extremely gravelly sandy loam, extremely cobbly loam, extremely stony sandy loam, extremely stony loam, extremely cobbly sandy loam	*GP-GC, GP, GC	*A-2, A-6	0-50	25-65	20-70	15-65	5-65	0-50	25-35	10-20
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
312:												
Flagstaff-------	0-1	*Loamy sand	*SM, SC-SM	*A-2, A-1	0	0	90-100	85-100	40-75	15-30	0-20	NP-5
	1-3	*Gravelly sandy loam, sandy loam, cobbly coarse sandy loam	*SC-SM, SM	*A-2, A-1, A-4	0	0-25	75-100	70-100	40-75	20-40	10-20	NP-5
	3-27	*Sandy loam, gravelly coarse sandy loam, coarse sandy loam, loamy sand	*SC-SM, SM	*A-2, A-1, A-4	0	0-15	70-100	65-100	40-75	20-40	10-20	NP-5
	27-60	*Very gravelly loamy sand	*GP-GM, GM	*A-1	0	0-10	45-60	40-55	20-35	5-20	0-20	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
313:												
Flagstaff, ashy very fine sandy loam surface--------	0-4	*Ashy very fine sandy loam	*ML, SM, CL-ML	*A-4	0	0	100	100	90-100	45-65	10-15	NP-5
	4-12	*Ashy silty clay loam, ashy silt loam, ashy loam, ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	90-100	60-100	10-15	NP-5
	12-16	*Paragravelly ashy silt loam, parachannery ashy silt loam, paragravelly ashy silty clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	16-43	*Extremely parachannery ashy silt loam, very parachannery ashy silty clay loam, very parachannery ashy silt loam, very parachannery ashy loam, extremely parachannery ashy silty clay loam, extremely parachannery ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	43-69	*Very parachannery ashy silty clay loam, very parachannery ashy loam, very parachannery ashy silt loam, extremely parachannery ashy silt loam, extremely parachannery ashy silty clay loam, extremely parachannery ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	69-80	*Paragravelly ashy loamy fine sand, paragravelly ashy fine sandy loam, paragravelly ashy very fine sandy loam	*SM, CL-ML	*A-4, A-2	0	0	100	100	65-80	25-60	10-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
313:												
Flagstaff, ashy sandy loam surface--------	0-4	*Ashy sandy loam	*ML, SM, CL-ML	*A-4	0	0	100	100	90-100	45-65	10-15	NP-5
	4-12	*Ashy silty clay loam, ashy silt loam, ashy loam, ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	90-100	60-100	10-15	NP-5
	12-16	*Paragravelly ashy silt loam, parachannery ashy silt loam, paragravelly ashy silty clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	16-43	*Extremely parachannery ashy silt loam, very parachannery ashy silty clay loam, very parachannery ashy silt loam, very parachannery ashy loam, extremely parachannery ashy silty clay loam, extremely parachannery ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	43-69	*Very parachannery ashy silty clay loam, very parachannery ashy loam, very parachannery ashy silt loam, extremely parachannery ashy silt loam, extremely parachannery ashy silty clay loam, extremely parachannery ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	69-80	*Paragravelly ashy loamy fine sand, paragravelly ashy fine sandy loam, paragravelly ashy very fine sandy loam	*SM, CL-ML	*A-4, A-2	0	0	100	100	65-80	25-60	10-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
314:												
Flagstaff-------	0-4	*Ashy silt loam	*ML, CL-ML	*A-4	0	0	100	100	90-100	70-90	10-15	NP-5
	4-12	*Ashy silty clay loam, ashy silt loam, ashy loam, ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	90-100	60-100	10-15	NP-5
	12-16	*Paragravelly ashy silt loam, parachannery ashy silt loam, paragravelly ashy silty clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	16-43	*Extremely parachannery ashy silt loam, very parachannery ashy silty clay loam, very parachannery ashy silt loam, very parachannery ashy loam, extremely parachannery ashy silty clay loam, extremely parachannery ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	43-69	*Very parachannery ashy silty clay loam, very parachannery ashy loam, very parachannery ashy silt loam, extremely parachannery ashy silt loam, extremely parachannery ashy silty clay loam, extremely parachannery ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	69-80	*Paragravelly ashy loamy fine sand, paragravelly ashy fine sandy loam, paragravelly ashy very fine sandy loam	*SM, CL-ML	*A-4, A-2	0	0	100	100	65-80	25-60	10-15	NP-5
Playas----------	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
315:												
Flagstaff-------	0-4	*Ashy very fine sandy loam	*ML, SM, CL-ML	*A-4	0	0	100	100	90-100	45-65	10-15	NP-5
	4-12	*Ashy silty clay loam, ashy silt loam, ashy loam, ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	90-100	60-100	10-15	NP-5
	12-16	*Paragravelly ashy silt loam, parachannery ashy silt loam, paragravelly ashy silty clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	16-43	*Extremely parachannery ashy silt loam, very parachannery ashy silty clay loam, very parachannery ashy silt loam, very parachannery ashy loam, extremely parachannery ashy silty clay loam, extremely parachannery ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	43-69	*Very parachannery ashy silty clay loam, very parachannery ashy loam, very parachannery ashy silt loam, extremely parachannery ashy silt loam, extremely parachannery ashy silty clay loam, extremely parachannery ashy clay loam	*ML, CL-ML	*A-4	0	0	100	100	75-100	60-100	10-15	NP-5
	69-80	*Paragravelly ashy loamy fine sand, paragravelly ashy fine sandy loam, paragravelly ashy very fine sandy loam	*SM, CL-ML	*A-4, A-2	0	0	100	100	65-80	25-60	10-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
315:												
Salhouse--------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-2, A-4	0	0	95-100	90-100	60-80	20-40	0-20	NP-5
	5-42	*Ashy loamy sand, ashy sand	*SC-SM, SP-SM	*A-2, A-1	0	0	95-100	90-100	50-75	5-30	0-20	NP-5
	42-61	*Ashy silt loam, ashy loam, ashy sandy loam, silt loam, loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	95-100	90-100	55-100	30-100	20-35	5-20
316:												
Foleylake-------	0-2	*Very gravelly loam	*GC-GM, SC	*A-4, A-2	0-10	10-25	55-95	40-60	40-50	30-40	20-30	5-10
	2-8	*Very cobbly loam	*SC-SM, CL	*A-2, A-1, A-4	10-25	25-40	70-85	45-70	40-70	25-55	20-30	5-10
	8-18	*Gravelly clay	*CH, SC	*A-7, A-2	0	0-10	75-90	55-75	55-75	35-75	50-60	25-35
	18-23	*Gravelly clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	75-95	55-85	50-85	35-70	35-50	20-30
	23-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Anawalt---------	0-3	*Very cobbly loam	*CL, SC-SM	*A-4, A-6, A-2	10-15	30-45	50-70	45-60	40-55	35-50	20-35	5-15
	3-7	*Cobbly clay loam, clay loam, clay, cobbly clay	*CL, CH, SC	*A-6, A-7	0-10	0-25	80-100	70-90	55-90	40-90	35-65	20-45
	7-18	*Cobbly clay, cobbly clay loam, clay loam, clay	*CL, CH, SC	*A-7, A-6	0-10	0-25	80-100	70-90	55-90	40-90	40-65	25-45
	18-28	*Bedrock			---	---	---	---	---	---	---	---
317:												
Fort Rock-------	0-5	*Ashy sandy loam	*SC-SM, SM	*A-2, A-4	0	0	95-100	85-100	55-70	30-40	0-10	NP-5
	5-16	*Gravelly ashy sandy loam, ashy sandy loam	*SM, SC-SM	*A-1, A-2	0	0	90-100	60-100	35-60	15-30	10-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
318:												
Fort Rock-------	0-5	*Gravelly ashy sandy loam	*SM, SC-SM	*A-1, A-2	0	0	95-100	50-75	35-50	20-30	0-10	NP-5
	5-16	*Gravelly ashy loamy coarse sand, ashy loamy coarse sand, gravelly ashy loamy sand, ashy loamy sand	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	60-90	30-60	10-25	15-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
319:												
Fort Rock-------	0-5	*Very gravelly ashy loamy sand	*SP-SM, SC-SM	*A-1	0	0	95-100	25-50	10-30	5-15	10-15	NP-5
	5-16	*Gravelly ashy loamy coarse sand, ashy loamy coarse sand, gravelly ashy loamy sand, ashy loamy sand	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	60-90	30-60	10-25	15-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
319:												
Bonnick---------	0-3	*Very gravelly ashy loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	35-50	25-40	5-15	10-15	NP-5
	3-10	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	60-90	40-70	10-30	10-15	NP-5
	10-28	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	60-90	40-70	15-30	10-15	NP-5
	28-42	*Gravelly ashy loamy sand, ashy loamy sand	*SM, SC-SM	*A-1, A-2	0	0	100	60-90	40-70	15-30	10-15	NP-5
	42-45	*Very gravelly loamy sand, gravelly sandy loam	*SP-SM, SC, SW	*A-1, A-2	0	0	100	35-70	25-60	3-30	10-20	NP-10
	45-60	*Extremely gravelly sand, very gravelly sand	*SP-SM SP-SC, SP	*A-1	0	0	100	20-35	10-35	0-10	0-10	NP-5
320:												
Fort Rock-------	0-5	*Gravelly ashy loamy sand	*SM, SC-SM	*A-1	0	0	95-100	50-75	20-50	15-25	0-10	NP-5
	5-16	*Gravelly ashy sandy loam, ashy sandy loam	*SM, SC-SM	*A-1, A-2	0	0	90-100	60-100	35-60	15-30	10-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
Lapham----------	0-2	*Very gravelly ashy sandy loam	*GC-GM, GP-GM, GC	*A-1, A-2	0	0	30-55	25-50	15-35	10-20	20-30	NP-10
	2-16	*Gravelly ashy sandy loam	*SC-SM, SC, GP-GM	*A-1, A-2	0	0	55-80	50-75	25-50	10-30	20-30	NP-10
	16-20	*Extremely gravelly ashy loam	*GW-GC, GP-GC, GC	*A-2, A-1	0	0-25	20-40	15-35	5-20	5-15	20-30	5-15
	20-60	*Extremely gravelly ashy sandy loam	*GP-GC, GC	*A-1, A-2	0	10-30	15-35	10-30	5-20	0-15	15-25	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
321:												
Fort Rock, warm	0-5	*Very gravelly ashy sandy loam	*SM, SP-SM, SC-SM	*A-1	0	0	95-100	25-50	15-35	10-20	10-15	NP-5
	5-16	*Gravelly ashy sandy loam, ashy sandy loam	*SM, SC-SM	*A-1, A-2	0	0	90-100	60-100	35-60	15-30	10-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
Lapham, warm----	0-2	*Gravelly ashy sandy loam	*SC-SM, SC, GP-GM	*A-1, A-2	0	0	55-80	50-75	25-50	10-30	20-30	NP-10
	2-16	*Gravelly ashy sandy loam	*SC-SM, SC, GP-GM	*A-1, A-2	0	0	55-80	50-75	25-50	10-30	20-30	NP-10
	16-20	*Extremely gravelly ashy loam	*GP-GC, GW-GC, GC	*A-2, A-1	0	0-25	20-40	15-35	5-20	5-15	20-30	5-15
	20-60	*Extremely gravelly ashy sandy loam	*GP-GC, GC	*A-1, A-2	0	10-30	15-35	10-30	5-20	0-15	15-25	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
322:												
Fort Rock-------	0-5	*Very gravelly ashy sandy loam	*SM, SP-SM, SC-SM	*A-1	0	0	95-100	25-50	15-35	10-20	10-15	NP-5
	5-16	*Gravelly ashy sandy loam, ashy sandy loam	*SM, SC-SM	*A-1, A-2	0	0	90-100	60-100	35-60	15-30	10-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
Morehouse-------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
323:												
Fort Rock-------	0-5	*Ashy loamy sand	*SC-SM, SM	*A-2	0	0	95-100	85-100	60-75	25-30	0-25	NP-5
	5-16	*Gravelly ashy loamy coarse sand, ashy loamy coarse sand, gravelly ashy loamy sand, ashy loamy sand	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	60-90	30-60	10-25	15-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
Morehouse-------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
324:												
Fort Rock, moist	0-5	*Very gravelly ashy sandy loam	*SM, SP-SM, SC-SM	*A-1	0	0	95-100	25-50	15-35	10-20	10-15	NP-5
	5-16	*Gravelly ashy sandy loam, ashy sandy loam	*SM, SC-SM	*A-1, A-2	0	0	90-100	60-100	35-60	15-30	10-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
Morehouse, moist	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
325:												
Fort Rock-------	0-5	*Very gravelly ashy sandy loam	*SM, SP-SM, SC-SM	*A-1	0	0	95-100	25-50	15-35	10-20	10-15	NP-5
	5-16	*Gravelly ashy sandy loam, ashy sandy loam	*SM, SC-SM	*A-1, A-2	0	0	90-100	60-100	35-60	15-30	10-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
Suckerflat------	0-8	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	40-75	15-30	20-30	NP-5
	8-18	*Cobbly ashy loam, ashy loamy sand, ashy sandy loam	*CL, SC-SM, ML	*A-4, A-1	0-10	0-15	80-100	75-100	40-80	25-70	20-35	5-10
	18-28	*Bedrock			---	---	---	---	---	---	---	---
326:												
Fossilake-------	0-1	*Ashy fine sandy loam	*SC-SM, SM	*A-4	0	0	100	100	90-100	40-55	15-25	NP-10
	1-3	*Ashy very fine sandy loam	*CL-ML, SC-SM	*A-4	0	0	100	100	90-100	40-60	20-30	5-10
	3-15	*Ashy silt loam, ashy sandy clay loam, ashy very fine sandy loam	*CL, SC-SM	*A-6, A-4	0	0	100	100	80-100	45-95	20-35	5-20
	15-31	*Stratified ashy loamy sand to ashy loam	*SC-SM, CL	*A-4, A-6, A-2	0	0	100	100	60-100	20-80	15-35	5-15
	31-43	*Ashy loam, ashy clay loam	*CL	*A-6	0	0	100	100	90-100	60-85	30-40	15-25
	43-66	*Ashy silt loam, ashy loam	*CL	*A-6, A-4	0	0	100	100	90-100	55-95	25-35	10-20

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
327:												
Fossilake, cool	0-1	*Ashy loamy fine sand	*SC-SM, SM	*A-2, A-4	0	0	100	100	70-85	20-40	15-20	NP-5
	1-3	*Ashy very fine sandy loam	*CL-ML, SC-SM	*A-4	0	0	100	100	90-100	40-60	20-30	5-10
	3-15	*Ashy silt loam, ashy sandy clay loam, ashy very fine sandy loam	*CL, SC-SM	*A-6, A-4	0	0	100	100	80-100	45-95	20-35	5-20
	15-31	*Stratified ashy loamy sand to ashy loam	*SC-SM, CL	*A-4, A-6, A-2	0	0	100	100	60-100	20-80	15-35	5-15
	31-43	*Ashy loam, ashy clay loam	*CL	*A-6	0	0	100	100	90-100	60-85	30-40	15-25
	43-66	*Ashy silt loam, ashy loam	*CL	*A-6, A-4	0	0	100	100	90-100	55-95	25-35	10-20
Salhouse, cool--	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-2, A-4	0	0	95-100	90-100	60-80	20-40	0-20	NP-5
	5-42	*Ashy loamy sand, ashy sand	*SC-SM, SP-SM	*A-2, A-1	0	0	95-100	90-100	50-75	5-30	0-20	NP-5
	42-61	*Ashy silt loam, ashy loam, ashy sandy loam, silt loam, loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	95-100	90-100	55-100	30-100	20-35	5-20
328:												
Giranch---------	0-11	*Cobbly ashy very fine sand	*SM	*A-2, A-4	0-10	15-40	70-95	65-90	45-75	20-40	20-30	NP-5
	11-23	*Very gravelly ashy sandy clay loam, very stony ashy clay loam	*GC	*A-7, A-2	0-40	0-25	30-75	25-70	25-60	20-50	40-50	20-30
	23-29	*Gravelly clay, very stony clay	*CH, GC	*A-7, A-2	0-45	0-15	50-75	45-65	35-60	30-60	50-65	30-40
	29-33	*Clay loam	*CL, CH	*A-6, A-7	0-10	0-10	85-100	80-100	70-100	55-80	35-50	20-30
	33-60	*Cemented material			---	---	---	---	---	---	---	---
Meld------------	0-3	*Gravelly ashy very fine sandy loam	*GC-GM, GM, SC	*A-4, A-2	0	0-10	60-80	55-75	50-70	30-45	15-30	NP-10
	3-16	*Ashy clay loam	*CL, SC	*A-6, A-7	0	0	80-95	75-90	55-85	40-70	35-45	20-25
	16-33	*Very gravelly ashy clay loam, gravelly ashy clay loam	*GC	*A-2, A-7	0	0	40-70	35-60	20-55	15-45	35-45	20-25
	33-40	*Cemented material			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
329:												
Glencabin, south	0-5	*Gravelly ashy loam	*GC, GC-GM	*A-4, A-6, A-1	0-10	0-10	60-80	55-75	35-60	25-50	20-40	5-15
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---
330:												
Glencabin, north	0-5	*Gravelly ashy loam	*GC, GC-GM	*A-4, A-6, A-1	0-10	0-10	60-80	55-75	35-60	25-50	20-40	5-15
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---
331:												
Glencabin, south	0-5	*Gravelly ashy loam	*GC, GC-GM	*A-4, A-6, A-1	0-10	0-10	60-80	55-75	35-60	25-50	20-40	5-15
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---
332:												
Glencabin, south, dry-----	0-5	*Gravelly ashy loam	*GC, GC-GM	*A-4, A-6, A-1	0-10	0-10	60-80	55-75	35-60	25-50	20-40	5-15
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
332:												
Glencabin, north, dry-----	0-5	*Gravelly ashy loam	*GC, GC-GM	*A-4, A-6, A-1	0-10	0-10	60-80	55-75	35-60	25-50	20-40	5-15
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---
333:												
Glencabin-------	0-5	*Very gravelly ashy sandy loam	*GC-GM, GM, SC	*A-1, A-2	0-10	0-15	40-75	35-65	35-55	15-30	15-30	NP-10
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
334:												
Glencabin-------	0-5	*Gravelly ashy sandy loam	*GM, SC	*A-1, A-2	0-5	0-5	60-80	55-75	35-50	20-30	15-30	NP-10
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
335:												
Glencabin, gravelly ashy loamy sand surface	0-5	*Gravelly ashy loamy sand	*GM, SC-SM, GP-GM	*A-1	0-5	0-5	55-80	50-75	30-50	10-20	15-25	NP-5
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---
Glencabin, ashy loamy sand surface	0-5	*Ashy loamy sand	*SM, SC-SM	*A-2	0	0	95-100	85-100	60-75	20-30	10-15	NP-5
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---
Wanoga	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-70	15-30	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---
336:												
Glencabin	0-5	*Ashy loamy sand	*SM, SC-SM	*A-2	0	0	95-100	85-100	60-75	20-30	10-15	NP-5
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
336:												
Yapoah----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	90-100	85-100	45-75	15-30	10-15	NP-5
	6-16	*Gravelly ashy loamy sand, gravelly ashy sandy loam, very gravelly ashy loamy sand	*SW-SM, SM, GP-GM	*A-1	0	0-15	50-80	45-75	20-50	5-20	20-30	NP-5
	16-36	*Very gravelly ashy loamy sand, very gravelly ashy sandy loam, gravelly ashy loamy sand	*SP-SC, SM, GP-GM	*A-1	0	0-15	45-80	40-75	20-50	5-20	20-30	NP-5
	36-61	*Extremely flaggy ashy loamy sand, very gravelly ashy sandy loam, very cobbly ashy loamy sand, very gravelly ashy loamy sand	*GP-GC, SC-SM, GP-GM	*A-1	0-55	15-55	35-75	30-70	15-45	5-20	15-25	NP-5
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
338:												
Goodtack--------	0-3	*Ashy very fine sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0-5	90-100	85-100	55-80	30-55	20-30	5-10
	3-7	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	7-19	*Ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	55-90	30-55	30-40	10-20
	19-46	*Cemented material			---	---	---	---	---	---	---	---
	46-56	*Bedrock			---	---	---	---	---	---	---	---
339:												
Goodtack, low precipitation--	0-3	*Ashy very fine sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0-5	90-100	85-100	55-80	30-55	20-30	5-10
	3-7	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	7-19	*Ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	55-90	30-55	30-40	10-20
	19-46	*Cemented material			---	---	---	---	---	---	---	---
	46-56	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
340:												
Goodtack--------	0-3	*Ashy coarse sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	3-7	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	7-19	*Ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	55-90	30-55	30-40	10-20
	19-46	*Cemented material			---	---	---	---	---	---	---	---
	46-56	*Bedrock			---	---	---	---	---	---	---	---
Borobey---------	0-4	*Gravelly ashy sandy loam	*SM, SC-SM	*A-1, A-2	0	0	65-80	60-75	30-50	15-30	10-15	NP-5
	4-12	*Ashy loamy sand, gravelly ashy sandy loam, gravelly ashy loamy sand, ashy sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	30-95	10-75	10-15	NP-5
	12-50	*Ashy loamy fine sand, gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	45-95	10-55	10-15	NP-5
	50-68	*Ashy loamy sand, very gravelly ashy loamy coarse sand, ashy gravelly loamy sand, ashy sandy loam, very gravelly ashy sandy loam	*SM, CL-ML, SW-SM, ML	*A-2, A-1, A-4	0	0	60-100	35-100	10-95	5-55	10-15	NP-5
341:												
Goodtack--------	0-3	*Ashy loamy fine sand	*SM	*A-4, A-2	0	0-5	95-100	90-100	80-95	30-50	20-30	NP-5
	3-7	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	7-19	*Ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	55-90	30-55	30-40	10-20
	19-46	*Cemented material			---	---	---	---	---	---	---	---
	46-56	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
341:												
Borobey---------	0-4	*Ashy loamy sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	90-100	85-100	45-70	10-25	10-15	NP-5
	4-12	*Ashy loamy sand, gravelly ashy sandy loam, gravelly ashy loamy sand, ashy sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	30-95	10-75	10-15	NP-5
	12-50	*Ashy loamy fine sand, gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	45-95	10-55	10-15	NP-5
	50-68	*Ashy loamy sand, very gravelly ashy loamy coarse sand, ashy gravelly loamy sand, ashy sandy loam, very gravelly ashy sandy loam	*SM, CL-ML, SW-SM, ML	*A-2, A-1, A-4	0	0	60-100	35-100	10-95	5-55	10-15	NP-5
342:												
Goodtack--------	0-3	*Ashy loamy fine sand	*SM	*A-4, A-2	0	0-5	95-100	90-100	80-95	30-50	20-30	NP-5
	3-7	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	7-19	*Ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	55-90	30-55	30-40	10-20
	19-46	*Cemented material			---	---	---	---	---	---	---	---
	46-56	*Bedrock			---	---	---	---	---	---	---	---
Morehouse-------	0-5	*Ashy sand	*SM, SC-SM	*A-2	0	0	80-100	75-100	55-70	25-30	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-60	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
343:												
Goodtack--------	0-3	*Ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	3-7	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	7-19	*Ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	55-90	30-55	30-40	10-20
	19-46	*Cemented material			---	---	---	---	---	---	---	---
	46-56	*Bedrock			---	---	---	---	---	---	---	---
Sliptrack-------	0-3	*Stony ashy fine sandy loam	*SC, SC-SM, SM	*A-4, A-2	10-20	10-15	85-95	80-90	50-75	30-50	20-35	5-10
	3-11	*Ashy fine sandy loam	*CL, SC-SM, ML	*A-4, A-2	0	0-10	90-100	85-100	55-85	30-55	25-35	5-10
	11-16	*Ashy sandy clay loam	*SC, CH	*A-6, A-2, A-7	0	0-10	90-100	85-100	65-90	30-55	35-50	15-25
	16-22	*Ashy clay loam, ashy sandy clay loam	*CL, CH, SC	*A-7, A-2	0	0-10	90-100	85-100	65-100	30-80	40-50	20-25
	22-60	*Cemented material			---	---	---	---	---	---	---	---
344:												
Gradon----------	0-3	*Gravelly fine sandy loam	*SC, GC-GM, SM	*A-2, A-4, A-1	0	0	55-85	50-75	35-70	15-40	25-35	5-10
	3-10	*Loam	*CL, SC	*A-6, A-4	0	0	90-100	85-100	70-95	45-75	25-40	10-20
	10-22	*Clay loam, loam, gravelly sandy clay loam	*CL, GC	*A-6, A-7, A-2	0	0	65-95	60-90	50-85	30-75	35-45	15-25
	22-32	*Gravelly sandy loam	*SC, SC-SM	*A-2, A-1, A-4	0	0	70-85	60-75	50-60	20-40	25-30	5-10
	32-48	*Cemented material			---	---	---	---	---	---	---	---
	48-55	*Cemented material			---	---	---	---	---	---	---	---
	55-62	*Sandy loam, gravelly sandy loam	*SC-SM, GM, CL	*A-4, A-1	0	0	60-100	55-100	40-80	20-55	15-25	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
345:												
Greenmountain---	0-3	*Gravelly ashy sandy loam	*SC-SM, SM	*A-2, A-1	0	0-15	65-80	60-75	35-50	20-35	15-25	NP-5
	3-13	*Ashy sandy loam	*SC-SM	*A-2, A-4	0	0-10	80-100	75-95	55-70	25-50	20-30	5-10
	13-17	*Cobbly ashy sandy loam	*SC	*A-2, A-6	0	15-25	75-100	70-95	45-75	20-50	25-30	10-15
	17-24	*Ashy sandy loam, gravelly ashy sandy loam, ashy sandy clay loam, gravelly ashy sandy clay loam	*SC, CL	*A-2, A-6	0	10-15	80-100	75-95	50-75	20-55	25-35	10-20
	24-37	*Cobbly ashy fine sandy loam	*SC-SM	*A-4, A-1	0	15-25	70-100	65-95	50-80	20-50	25-30	5-10
	37-42	*Cemented material			---	---	---	---	---	---	---	---
	42-65	*Cobbly ashy fine sandy loam	*SC-SM	*A-4, A-2	0	15-25	80-95	70-95	60-85	30-55	20-30	5-10
346:												
Greenmountain---	0-3	*Ashy sandy loam	*SC-SM, SM	*A-2, A-4	0	0-10	80-100	75-95	55-70	25-50	15-25	NP-5
	3-13	*Ashy sandy loam	*SC-SM	*A-2, A-4	0	0-10	80-100	75-95	55-70	25-50	20-30	5-10
	13-17	*Cobbly ashy sandy loam	*SC	*A-2, A-6	0	15-25	75-100	70-95	45-75	20-50	25-30	10-15
	17-24	*Ashy sandy loam, gravelly ashy sandy loam, ashy sandy clay loam, gravelly ashy sandy clay loam	*SC, CL	*A-2, A-6	0	10-15	80-100	75-95	50-75	20-55	25-35	10-20
	24-37	*Cobbly ashy fine sandy loam	*SC-SM	*A-4, A-1	0	15-25	70-100	65-95	50-80	20-50	25-30	5-10
	37-42	*Cemented material			---	---	---	---	---	---	---	---
	42-65	*Cobbly ashy fine sandy loam	*SC-SM	*A-4, A-2	0	15-25	80-95	70-95	60-85	30-55	20-30	5-10
Jacksplace------	0-4	*Ashy sandy loam	*SC-SM, SM	*A-2, A-4	0	0	95-100	90-100	55-70	25-40	20-30	NP-5
	4-9	*Cobbly ashy sandy loam	*SC-SM, SM	*A-2, A-1	0-5	15-30	75-95	70-90	35-65	15-35	20-30	NP-5
	9-12	*Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	*SC, GW-GC	*A-2	15-45	15-45	45-80	40-75	15-50	10-30	25-30	10-15
	12-20	*Extremely stony ashy sandy clay loam, very stony ashy sandy loam, very stony ashy sandy clay loam	*GC, GP-GC, SC	*A-2	25-50	15-30	50-85	45-80	25-65	10-40	25-40	10-20
	20-26	*Extremely stony ashy sandy loam, very stony ashy sandy loam	*SC, GC	*A-2	30-55	15-30	55-90	50-85	30-55	15-30	25-30	10-15
	26-30	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
347:												
Greenmountain---	0-3	*Ashy fine sandy loam	*CL-ML, SM	*A-4	0	0-10	80-100	75-95	65-75	45-55	15-25	NP-5
	3-13	*Ashy sandy loam	*SC-SM	*A-2, A-4	0	0-10	80-100	75-95	55-70	25-50	20-30	5-10
	13-17	*Cobbly ashy sandy loam	*SC	*A-2, A-6	0	15-25	75-100	70-95	45-75	20-50	25-30	10-15
	17-24	*Ashy sandy loam, gravelly ashy sandy loam, ashy sandy clay loam, gravelly ashy sandy clay loam	*SC, CL	*A-2, A-6	0	10-15	80-100	75-95	50-75	20-55	25-35	10-20
	24-37	*Cobbly ashy fine sandy loam	*SC-SM	*A-4, A-1	0	15-25	70-100	65-95	50-80	20-50	25-30	5-10
	37-42	*Cemented material			---	---	---	---	---	---	---	---
	42-65	*Cobbly ashy fine sandy loam	*SC-SM	*A-4, A-2	0	15-25	80-95	70-95	60-85	30-55	20-30	5-10
Lastcall--------	0-2	*Ashy loamy fine sand	*SM, SC-SM	*A-1, A-2	0	0	90-95	85-90	40-70	15-25	10-15	NP-5
	2-7	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	7-13	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	13-21	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-2	0	10-25	85-95	80-90	65-80	30-50	30-40	10-20
	21-31	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-7, A-2	0	10-35	85-95	80-90	65-80	30-50	30-45	10-25
	31-41	*Bedrock			---	---	---	---	---	---	---	---
348:												
Greenmountain---	0-3	*Ashy sandy loam	*SC-SM, SM	*A-2, A-4	0	0-10	80-100	75-95	55-70	25-50	15-25	NP-5
	3-13	*Ashy sandy loam	*SC-SM	*A-2, A-4	0	0-10	80-100	75-95	55-70	25-50	20-30	5-10
	13-17	*Cobbly ashy sandy loam	*SC	*A-2, A-6	0	15-25	75-100	70-95	45-75	20-50	25-30	10-15
	17-24	*Ashy sandy loam, gravelly ashy sandy loam, ashy sandy clay loam, gravelly ashy sandy clay loam	*SC, CL	*A-2, A-6	0	10-15	80-100	75-95	50-75	20-55	25-35	10-20
	24-37	*Cobbly ashy fine sandy loam	*SC-SM	*A-4, A-1	0	15-25	70-100	65-95	50-80	20-50	25-30	5-10
	37-42	*Cemented material			---	---	---	---	---	---	---	---
	42-65	*Cobbly ashy fine sandy loam	*SC-SM	*A-4, A-2	0	15-25	80-95	70-95	60-85	30-55	20-30	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
348:												
Weglike---------	0-3	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	50-75	15-30	20-30	NP-5
	3-12	*Ashy sandy loam, ashy loamy sand	*SC-SM, SM	*A-2, A-1, A-4	0	0	90-100	85-100	40-75	15-40	20-30	NP-5
	12-22	*Gravelly loam, gravelly sandy loam, gravelly clay loam	*GC, SC, CL	*A-6, A-2	0	0-15	60-80	55-75	30-70	15-55	25-40	10-20
	22-23	*Extremely gravelly loam, very gravelly clay loam	*GP-GC, GC	*A-2, A-6	0	0-30	30-55	25-50	15-45	10-40	25-40	10-20
	23-33	*Bedrock			---	---	---	---	---	---	---	---
349:												
Hackwood--------	0-11	*Gravelly loam	*SC, SC-SM, SM	*A-4, A-2	0	0-10	70-85	60-75	50-65	35-50	25-35	5-10
	11-23	*Loam, gravelly loam	*CL, SC-SM, ML	*A-4, A-2	0	0-5	70-100	60-90	60-85	35-70	25-35	5-10
	23-48	*Gravelly loam, gravelly clay loam	*GC, GC-GM, ML	*A-4, A-2	0	0-5	65-90	50-75	40-70	35-55	25-35	5-10
	48-60	*Gravelly loam, very gravelly loam, very gravelly clay loam	*SC, GM, GC-GM	*A-4, A-1	0	0-5	55-85	40-70	35-65	25-50	25-35	5-10
Westbutte, north	0-3	*Very stony loam	*SM, CL, GC	*A-4, A-6, A-2	25-55	10-35	50-75	45-70	35-65	25-60	30-40	10-15
	3-11	*Very cobbly loam, extremely cobbly clay loam, very cobbly clay loam, extremely cobbly loam, very stony loam	*GC, SC	*A-6, A-7, A-2	0-50	30-55	30-85	25-80	25-60	20-50	30-45	10-20
	11-21	*Extremely cobbly clay loam, very cobbly loam, very stony loam, very cobbly clay loam, extremely cobbly loam	*GC	*A-6, A-2, A-7	0-50	30-55	30-65	25-60	25-60	20-50	30-45	10-20
	21-31	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
350:												
Hager, cobbly loam surface---	0-4	*Cobbly loam	*CL, SC	*A-4	0-5	15-45	80-95	70-90	70-85	45-70	25-35	10-15
	4-8	*Cobbly loam, very cobbly loam, extremely cobbly loam	*CL, GC	*A-4, A-2	0-25	15-60	55-95	45-90	35-85	25-70	25-35	10-15
	8-24	*Silty clay loam, cobbly loam, clay loam	*CL	*A-6, A-7	0-10	0-15	80-95	75-90	65-90	50-85	35-45	15-25
	24-37	*Loam, gravelly loam, cobbly loam	*CL, GC	*A-4, A-2	0-10	0-25	65-100	55-90	45-85	30-70	30-35	10-15
	37-42	*Cemented material			---	---	---	---	---	---	---	---
	42-52	*Bedrock			---	---	---	---	---	---	---	---
Hager, extremely stony loam surface--------	0-4	*Extremely stony loam	*GC, GM, GC-GM	*A-2, A-1	40-50	15-45	40-55	35-55	30-45	25-40	25-35	5-10
	4-8	*Cobbly loam, very cobbly loam, extremely cobbly loam	*CL, GC	*A-4, A-2	0-25	15-60	55-95	45-90	35-85	25-70	25-35	10-15
	8-24	*Silty clay loam, cobbly loam, clay loam	*CL	*A-6, A-7	0-10	0-15	80-95	75-90	65-90	50-85	35-45	15-25
	24-37	*Loam, gravelly loam, cobbly loam	*CL, GC	*A-4, A-2	0-10	0-25	65-100	55-90	45-85	30-70	30-35	10-15
	37-42	*Cemented material			---	---	---	---	---	---	---	---
	42-52	*Bedrock			---	---	---	---	---	---	---	---
351:												
Hayespring------	0-3	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	90-100	85-100	65-90	30-50	10-20	NP-5
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
352:												
Hayespring------	0-3	*Stony ashy sandy loam	*SM, SC-SM	*A-1, A-2	15-30	0-15	70-95	65-90	35-55	15-30	25-35	5-10
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---
Dunres----------	0-4	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1, A-4	0-10	15-40	80-100	75-90	45-75	20-50	20-30	5-10
	4-8	*Ashy sandy clay loam, cobbly ashy sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0-30	85-100	80-100	50-80	20-55	30-45	15-25
	8-19	*Clay, cobbly clay	*CH, SC	*A-7	0	0-30	85-100	80-100	60-100	45-95	50-65	30-40
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-56	*Cemented material			---	---	---	---	---	---	---	---
	56-60	*Bedrock			---	---	---	---	---	---	---	---
353:												
Hayespring------	0-3	*Ashy fine sandy loam	*ML, CL-ML, SM	*A-4, A-2	0	0	90-100	85-100	55-85	30-55	25-35	5-10
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---
Moonbeam--------	0-3	*Ashy fine sandy loam	*CL-ML, ML	*A-4	0	0	95-100	90-100	75-85	50-60	15-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
354:												
Hayespring------	0-3	*Gravelly ashy loam	*ML, SC, GC-GM	*A-4	0-10	0-15	65-80	60-75	50-65	40-50	25-40	5-15
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---
Moonbeam--------	0-3	*Cobbly ashy loam	*CL, GC-GM	*A-4, A-6	0-10	15-30	70-95	65-90	60-75	40-60	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
355:												
Hayespring, cobbly ashy loamy sand surface--------	0-3	*Cobbly ashy loamy sand	*SM, SP-SM, SC-SM	*A-1, A-2	0-5	15-30	70-95	65-90	45-60	10-20	0-20	NP-5
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
355:												
Moonbeam, cobbly ashy loam surface---	0-3	*Cobbly ashy loam	*CL, GC-GM	*A-4, A-6	0-10	15-30	70-95	65-90	60-75	40-60	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
356:												
Hayespring, low precipitation--	0-3	*Very cobbly ashy sandy loam	*SM, SC-SM	*A-2, A-1	0-10	30-45	65-85	60-80	35-55	15-35	25-35	5-10
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---
Moonbeam, low precipitation--	0-3	*Very gravelly ashy loam	*GC, GC-GM	*A-2, A-1, A-6	0-10	10-25	40-60	35-55	25-50	20-40	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
357:												
Hayespring------	0-3	*Ashy sandy loam	*SM, SC-SM	*A-4, A-2	0	0	85-100	80-100	50-70	30-40	25-35	5-10
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---
Senra-----------	0-3	*Ashy sandy loam	*SC, SC-SM	*A-2, A-1	0	0-10	80-95	75-90	50-65	25-35	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
358:												
Helphenstein----	0-2	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	2-8	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	8-34	*Silty clay loam, silt loam, loam, clay loam	*CL	*A-6, A-7	0	0	100	100	85-100	60-95	30-45	15-25
	34-60	*Loam, silt loam, fine sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-90	20-40	5-20
359:												
Helphenstein, frequently ponded---------	0-2	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	2-8	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	8-34	*Silty clay loam, silt loam, loam, clay loam	*CL	*A-6, A-7	0	0	100	100	85-100	60-95	30-45	15-25
	34-60	*Loam, silt loam, fine sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-90	20-40	5-20
360:												
Helphenstein----	0-2	*Very channery loam	*CL, SC-SM	*A-4, A-6	0	45-65	75-90	70-85	60-75	40-60	20-35	5-15
	2-8	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	8-34	*Silty clay loam, silt loam, loam, clay loam	*CL	*A-6, A-7	0	0	100	100	85-100	60-95	30-45	15-25
	34-60	*Loam, silt loam, fine sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-90	20-40	5-20

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
361:												
Helphenstein----	0-2	*Fine sandy loam	*CL-ML, CL, SM	*A-4	0	0	100	100	70-85	40-55	15-25	NP-10
	2-8	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	8-34	*Silty clay loam, silt loam, loam, clay loam	*CL	*A-6, A-7	0	0	100	100	85-100	60-95	30-45	15-25
	34-60	*Loam, silt loam, fine sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-90	20-40	5-20
Kewake----------	0-4	*Ashy loamy fine sand	*SM, SC-SM	*A-2	0	0	100	100	70-90	15-30	10-20	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
362:												
Helphenstein, frequently ponded---------	0-4	*Ashy silty clay loam	*CL	*A-6	0	0	95-100	90-100	85-100	75-95	35-45	20-25
	4-9	*Ashy silty clay loam	*CL	*A-6	0	0	95-100	90-100	85-100	75-95	35-45	20-25
	9-18	*Ashy sandy loam	*SC-SM, SM	*A-2, A-4	0	0	95-100	90-100	55-70	25-40	15-25	NP-5
	18-60	*Ashy loam, ashy fine sandy loam	*CL-ML, CL, SC-SM	*A-4, A-2	0	0	95-100	90-100	65-95	35-75	20-30	5-10
Legler----------	0-4	*Loam	*CL	*A-6, A-4	0	0	90-100	85-100	65-95	50-75	30-40	10-20
	4-8	*Clay loam, loam, fine sandy loam	*CL, SC	*A-6, A-7, A-4	0	0	90-100	85-100	60-100	40-80	25-45	10-25
	8-43	*Clay loam, loam, fine sandy loam	*CL, SC	*A-6, A-7, A-4	0	0	85-100	80-100	60-100	40-80	25-45	10-25
	43-61	*Loam, silt loam	*CL	*A-6, A-4	0	0	85-100	80-100	65-100	50-90	30-40	10-15
Playas----------	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
363:												
Helphenstein, frequently ponded---------	0-2	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	2-8	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	8-34	*Silty clay loam, silt loam, loam, clay loam	*CL	*A-6, A-7	0	0	100	100	85-100	60-95	30-45	15-25
	34-60	*Loam, silt loam, fine sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-90	20-40	5-20
Pitcheranch-----	0-8	*Silty clay loam	*MH, ML	*A-7	0	0	100	100	95	85-95	45-60	15-25
	8-35	*Silt loam, ashy silt loam	*CL	*A-6, A-4, A-7	0	0	95-100	90-100	80-95	65-95	30-45	10-20
	35-62	*Stratified sandy loam to loam to silt loam to silty clay loam	*CL, SC-SM	*A-6, A-2, A-7	0	0	95-100	90-100	55-95	25-95	25-45	5-25
Reese-----------	0-4	*Silt loam	*ML, CL, CL-ML	*A-4, A-6	0	0	100	100	90-100	70-90	25-40	5-15
	4-10	*Loam	*ML, CL-ML, CL	*A-4, A-6	0	0	100	100	85-95	60-75	20-40	5-15
	10-33	*Loam, clay loam	*CL	*A-6, A-4	0	0	100	100	85-100	60-80	30-40	10-20
	33-44	*Loam, coarse sandy loam, sandy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	60-90	35-65	20-35	5-15
	44-60	*Loam, sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-75	20-35	5-15
364:												
Helphenstein----	0-2	*Fine sandy loam	*CL-ML, SM, CL	*A-4	0	0	100	100	70-85	40-55	15-25	NP-10
	2-8	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	8-34	*Silty clay loam, silt loam, loam, clay loam	*CL	*A-6, A-7	0	0	100	100	85-100	60-95	30-45	15-25
	34-60	*Loam, silt loam, fine sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-90	20-40	5-20
Turpin----------	0-3	*Sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0	100	100	80-90	35-55	30-45	15-25
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
364:												
Kewake----------	0-4	*Ashy fine sand	*SM, SC-SM	*A-2	0	0	100	100	65-80	20-35	10-15	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
365:												
Henkle----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Gravelly ashy fine sandy loam	*GC-GM, GM	*A-2, A-1, A-4	0	0	55-80	50-75	35-60	20-40	10-15	NP-5
	6-16	*Gravelly ashy loam, very cobbly ashy fine sandy loam, very cobbly ashy loam, gravelly ashy fine sandy loam	*GC-GM, GM	*A-4, A-1, A-2	0-10	0-40	55-80	50-70	40-65	25-50	10-15	NP-5
	16-20	*Extremely bouldery ashy loam, extremely stony ashy sandy loam, very bouldery ashy loam, very bouldery ashy sandy loam, extremely stony ashy loam	*GC-GM, GM	*A-4, A-2, A-1	40-75	10-45	65-85	60-85	40-80	20-70	10-15	NP-5
	20-30	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
365:												
Ludi------------	0-3	*Very gravelly ashy loamy sand	*GP-GM, GM	*A-1	0-10	0-15	40-65	35-60	20-50	5-20	20-30	NP-5
	3-12	*Very gravelly ashy very fine sandy loam, very gravelly ashy loam, extremely gravelly ashy sandy loam, very gravelly ashy sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-25	25-65	20-60	10-50	5-40	20-30	5-10
	12-35	*Extremely cobbly ashy very fine sandy loam, very gravelly ashy sandy loam, extremely gravelly ashy sandy loam, very cobbly ashy very fine sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-40	25-65	20-60	10-55	5-40	15-25	5-10
	35-60	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-5	NP
366:												
Henkle----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Extremely cobbly ashy loamy sand	*GP-GM	*A-1	0-15	30-65	40-55	35-50	15-30	5-15	10-15	NP-5
	6-16	*Gravelly ashy loam, very cobbly ashy fine sandy loam, very cobbly ashy loam, gravelly ashy fine sandy loam	*GC-GM, GM	*A-4, A-1, A-2	0-10	0-40	55-80	50-70	40-65	25-50	10-15	NP-5
	16-20	*Extremely bouldery ashy loam, extremely stony ashy sandy loam, very bouldery ashy loam, very bouldery ashy sandy loam, extremely stony ashy loam	*GC-GM, GM	*A-4, A-2, A-1	40-75	10-45	65-85	60-85	40-80	20-70	10-15	NP-5
	20-30	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
366:												
Wanoga----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	50-70	15-30	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---
367:												
Henkle, dry-----	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Ashy sandy loam	*SC-SM, SM	*A-4, A-2	0	0	90-100	85-100	55-70	30-45	10-15	NP-5
	6-16	*Gravelly ashy loam, very cobbly ashy fine sandy loam, very cobbly ashy loam, gravelly ashy fine sandy loam	*GC-GM, GM	*A-4, A-1, A-2	0-10	0-40	55-80	50-70	40-65	25-50	10-15	NP-5
	16-20	*Extremely bouldery ashy loam, extremely stony ashy sandy loam, very bouldery ashy loam, very bouldery ashy sandy loam, extremely stony ashy loam	*GC-GM, GM	*A-4, A-2, A-1	40-75	10-45	65-85	60-85	40-80	20-70	10-15	NP-5
	20-30	*Bedrock			---	---	---	---	---	---	---	---
Wanoga, dry-----	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Ashy sandy loam	*SC-SM, SM	*A-2, A-4	0	0	90-100	85-100	50-70	30-40	20-35	NP-10
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
368:												
Horning---------	0-4	*Ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	95-100	90-100	50-75	15-30	0-25	NP-5
	4-26	*Ashy loamy fine sand, ashy loamy sand, ashy sand	*SM, SC-SM, SP-SM	*A-4, A-1	0	0	100	100	50-90	5-50	0-25	NP-5
	26-40	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SM	*A-4, A-2	0	0	100	100	60-85	30-55	15-25	NP-5
	40-58	*Ashy loamy fine sand, ashy loamy sand	*SC-SM, SM	*A-2, A-4, A-1	0	0	100	100	50-90	15-50	15-25	NP-5
	58-85	*Ashy loam, ashy fine sandy loam, ashy silt loam	*CL, SM	*A-4, A-6	0	0	95-100	90-100	65-100	40-100	20-35	NP-15
369:												
Horning---------	0-4	*Ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	95-100	90-100	50-75	15-30	0-25	NP-5
	4-26	*Ashy loamy fine sand, ashy loamy sand, ashy sand	*SM, SC-SM, SP-SM	*A-4, A-1	0	0	100	100	50-90	5-50	0-25	NP-5
	26-40	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SM	*A-4, A-2	0	0	100	100	60-85	30-55	15-25	NP-5
	40-58	*Ashy loamy fine sand, ashy loamy sand	*SC-SM, SM	*A-2, A-4, A-1	0	0	100	100	50-90	15-50	15-25	NP-5
	58-85	*Ashy loam, ashy fine sandy loam, ashy silt loam	*CL, SM	*A-4, A-6	0	0	95-100	90-100	65-100	40-100	20-35	NP-15
Tonor-----------	0-3	*Ashy sandy loam	*SC-SM, SC, SM	*A-4, A-2	0	0	100	100	60-70	30-40	15-25	NP-10
	3-11	*Ashy loam, ashy silt loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	85-100	60-100	20-30	5-15
	11-43	*Ashy sandy loam, ashy loam, ashy silt loam	*SC, CL	*A-2, A-6	0	0	100	100	60-100	30-100	25-35	10-20
	43-60	*Very paragravelly ashy silt loam, very parachannery ashy silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-100	25-35	10-20
370:												
Icene-----------	0-3	*Loam	*CL-ML, ML	*A-4	0	0	100	100	75-95	55-75	15-30	NP-10
	3-7	*Loam, fine sandy loam	*CL-ML, ML	*A-4	0	0	100	100	75-95	55-75	15-30	NP-10
	7-41	*Loam, silt loam, silty clay loam, clay loam	*CL	*A-6, A-4	0	0	100	100	75-100	55-95	30-45	10-25
	41-60	*Fine sandy loam, loam, silt loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	65-100	35-75	20-30	5-15

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
370:												
Playas----------	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
371:												
Ipsoot----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-5	*Very paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-15	NP-5
	5-18	*Very paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-15	NP-5
	18-31	*Ashy coarse sand, very paragravelly ashy loamy coarse sand, very paragravelly ashy coarse sand, paragravelly ashy coarse sand	*SP-SM, SC-SM	*A-3, A-1, A-2	0	0	100	100	50-75	5-30	10-15	NP-5
	31-61	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-0	NP-5
372:												
Ipsoot, north---	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-5	*Very paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-15	NP-5
	5-18	*Very paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-15	NP-5
	18-31	*Ashy coarse sand, very paragravelly ashy loamy coarse sand, very paragravelly ashy coarse sand, paragravelly ashy coarse sand	*SP-SM, SC-SM	*A-3, A-1, A-2	0	0	100	100	50-75	5-30	10-15	NP-5
	31-61	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-0	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
373:												
Ipsoot, south---	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-5	*Very paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-15	NP-5
	5-18	*Very paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-15	NP-5
	18-31	*Ashy coarse sand, very paragravelly ashy loamy coarse sand, very paragravelly ashy coarse sand, paragravelly ashy coarse sand	*SP-SM, SC-SM	*A-3, A-1, A-2	0	0	100	100	50-75	5-30	10-15	NP-5
	31-61	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-0	NP-5
374:												
Jacksplace, moist----------	0-4	*Ashy fine sandy loam	*SC-SM, ML, SM	*A-4, A-2	0	0	95-100	90-100	65-85	35-55	20-30	NP-5
	4-9	*Cobbly ashy sandy loam	*SC-SM, SM	*A-2, A-1	0-5	15-30	75-95	70-90	35-65	15-35	20-30	NP-5
	9-12	*Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	*SC, GW-GC	*A-2	15-45	15-45	45-80	40-75	15-50	10-30	25-30	10-15
	12-20	*Extremely stony ashy sandy clay loam, very stony ashy sandy loam, very stony ashy sandy clay loam	*GC, GP-GC, SC	*A-2	25-50	15-30	50-85	45-80	25-65	10-40	25-40	10-20
	20-26	*Extremely stony ashy sandy loam, very stony ashy sandy loam	*SC, GC	*A-2	30-55	15-30	55-90	50-85	30-55	15-30	25-30	10-15
	26-30	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
375:												
Jacksplace------	0-4	*Ashy loamy sand	*SC-SM, SM	*A-2, A-1	0	0	95-100	90-100	45-75	15-30	20-25	NP-5
	4-9	*Cobbly ashy loamy sand, cobbly ashy sandy loam	*SC-SM, SP-SM, SM	*A-1, A-2	0-5	10-35	65-90	60-85	35-65	10-35	20-30	NP-5
	9-12	*Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	*SC, GW-GC	*A-2	15-45	15-45	45-80	40-75	15-50	10-30	25-30	10-15
	12-20	*Extremely stony ashy sandy clay loam, very stony ashy sandy loam, very stony ashy sandy clay loam	*GC, GP-GC, SC	*A-2	25-50	15-30	50-85	45-80	25-65	10-40	25-40	10-20
	20-26	*Extremely stony ashy sandy loam, very stony ashy sandy loam	*SC, GC	*A-2	30-55	15-30	55-90	50-85	30-55	15-30	25-30	10-15
	26-30	*Bedrock			---	---	---	---	---	---	---	---
376:												
Jacksplace------	0-4	*Cobbly ashy very fine sandy loam	*SC-SM, SM	*A-4	0-10	15-30	80-95	75-90	55-75	40-50	20-30	NP-5
	4-9	*Cobbly ashy sandy loam	*SC-SM, SM	*A-2, A-1	0-5	15-30	75-95	70-90	35-65	15-35	20-30	NP-5
	9-12	*Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	*SC, GW-GC	*A-2	15-45	15-45	45-80	40-75	15-50	10-30	25-30	10-15
	12-20	*Extremely stony ashy sandy clay loam, very stony ashy sandy loam, very stony ashy sandy clay loam	*GC, GP-GC, SC	*A-2	25-50	15-30	50-85	45-80	25-65	10-40	25-40	10-20
	20-26	*Extremely stony ashy sandy loam, very stony ashy sandy loam	*SC, GC	*A-2	30-55	15-30	55-90	50-85	30-55	15-30	25-30	10-15
	26-30	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
377:												
Jacksplace	0-4	*Stony ashy loamy fine sand	*SC-SM, SM	*A-2, A-4, A-1	15-25	0-15	75-85	70-80	50-60	20-40	25-30	NP-5
	4-9	*Cobbly ashy loamy sand, cobbly ashy sandy loam	*SM, SP-SM	*A-1, A-2	0-5	10-35	65-90	60-85	35-65	10-35	25-30	NP-5
	9-12	*Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	*SC, GW-GC	*A-2	15-45	15-45	45-80	40-75	15-50	10-30	25-30	10-15
	12-20	*Extremely stony ashy sandy clay loam, very stony ashy sandy loam, very stony ashy sandy clay loam	*GC, GP-GC, SC	*A-2	25-50	15-30	50-85	45-80	25-65	10-40	25-40	10-20
	20-26	*Extremely stony ashy sandy loam, very stony ashy sandy loam	*SC, GC	*A-2	30-55	15-30	55-90	50-85	30-55	15-30	25-30	10-15
	26-30	*Bedrock			---	---	---	---	---	---	---	---
378:												
Jacksplace	0-4	*Gravelly ashy very fine sandy loam	*SC-SM, GM, SM	*A-4, A-2	0	0-5	65-80	60-75	50-65	30-45	20-30	NP-5
	4-9	*Cobbly ashy sandy loam	*SC-SM, SM	*A-2, A-1	0-5	15-30	75-95	70-90	35-65	15-35	20-30	NP-5
	9-12	*Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	*SC, GW-GC	*A-2	15-45	15-45	45-80	40-75	15-50	10-30	25-30	10-15
	12-20	*Extremely stony ashy sandy clay loam, very stony ashy sandy loam, very stony ashy sandy clay loam	*GC, GP-GC, SC	*A-2	25-50	15-30	50-85	45-80	25-65	10-40	25-40	10-20
	20-26	*Extremely stony ashy sandy loam, very stony ashy sandy loam	*SC, GC	*A-2	30-55	15-30	55-90	50-85	30-55	15-30	25-30	10-15
	26-30	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
378:												
Derallo---------	0-1	*Extremely cobbly ashy fine sandy loam	*GC, GM, GP-GC	*A-2, A-1	0-15	45-65	25-70	20-65	20-50	10-35	25-35	5-10
	1-12	*Extremely cobbly ashy loam, extremely gravelly ashy loam	*GC, GP-GC	*A-2, A-6	0-20	30-65	20-50	15-45	15-45	10-40	30-40	10-20
	12-36	*Extremely gravelly ashy loam, very gravelly ashy sandy clay loam, very cobbly ashy sandy clay loam, very gravelly ashy clay loam	*GC, GP-GC	*A-2, A-7	0-20	20-45	20-65	15-60	10-55	10-45	35-45	15-25
	36-41	*Very gravelly ashy fine sandy loam	*GC, GC-GM	*A-2, A-1	0-20	0-45	40-65	35-60	25-45	20-30	20-30	5-10
	41-51	*Bedrock			---	---	---	---	---	---	---	---
Glencabin-------	0-5	*Very cobbly ashy fine sand	*SM, GP-GM, SC-SM	*A-1	0-10	30-50	50-75	45-70	25-45	10-20	10-20	NP-5
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---
379:												
Jacksplace------	0-4	*Cobbly ashy very fine sandy loam	*SC-SM, SM	*A-4	0-10	15-30	80-95	75-90	55-75	40-50	20-30	NP-5
	4-9	*Cobbly ashy sandy loam	*SC-SM, SM	*A-2, A-1	0-5	15-30	75-95	70-90	35-65	15-35	20-30	NP-5
	9-12	*Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	*SC, GW-GC	*A-2	15-45	15-45	45-80	40-75	15-50	10-30	25-30	10-15
	12-20	*Extremely stony ashy sandy clay loam, very stony ashy sandy loam, very stony ashy sandy clay loam	*GC, GP-GC, SC	*A-2	25-50	15-30	50-85	45-80	25-65	10-40	25-40	10-20
	20-26	*Extremely stony ashy sandy loam, very stony ashy sandy loam	*SC, GC	*A-2	30-55	15-30	55-90	50-85	30-55	15-30	25-30	10-15
	26-30	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
379:												
Senra	0-3	*Gravelly ashy very fine sandy loam	*SC, GC-GM	*A-4, A-2	0-15	0-10	60-80	55-75	50-65	30-45	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
380:												
Kewake	0-4	*Ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-20	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
382:												
Kewake	0-4	*Ashy loamy fine sand	*SM, SC-SM	*A-2	0	0	100	100	70-90	15-30	10-20	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
Helphenstein, frequently ponded	0-2	*Fine sandy loam	*CL-ML, SM, CL	*A-4	0	0	100	100	70-85	40-55	15-25	NP-10
	2-8	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	8-34	*Silty clay loam, silt loam, loam, clay loam	*CL	*A-6, A-7	0	0	100	100	85-100	60-95	30-45	15-25
	34-60	*Loam, silt loam, fine sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-90	20-40	5-20

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
383:												
Kewake----------	0-4	*Ashy fine sand	*SM, SC-SM	*A-2	0	0	100	100	65-80	20-35	10-15	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
Helphenstein, dry------------	0-2	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	2-8	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	8-34	*Silty clay loam, silt loam, loam, clay loam	*CL	*A-6, A-7	0	0	100	100	85-100	60-95	30-45	15-25
	34-60	*Loam, silt loam, fine sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-90	20-40	5-20
384:												
Kewake----------	0-4	*Ashy fine sand	*SM, SC-SM	*A-2	0	0	100	100	65-80	20-35	10-15	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
Icene-----------	0-3	*Loam	*CL-ML, ML	*A-4	0	0	100	100	75-95	55-75	15-30	NP-10
	3-7	*Loam, fine sandy loam	*CL-ML, ML	*A-4	0	0	100	100	75-95	55-75	15-30	NP-10
	7-41	*Loam, silt loam, silty clay loam, clay loam	*CL	*A-6, A-4	0	0	100	100	75-100	55-95	30-45	10-25
	41-60	*Fine sandy loam, loam, silt loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	65-100	35-75	20-30	5-15
385:												
Kewake----------	0-4	*Ashy fine sand	*SM, SC-SM	*A-2	0	0	100	100	65-80	20-35	10-15	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
385:												
Ozamis	0-10	*Silty clay	*CH	*A-7	0	0	100	100	95-100	90-95	55-65	30-35
	10-34	*Silt loam, silty clay loam, clay loam, loam, silty clay	*CL, CH	*A-6, A-7	0	0	90-100	85-100	80-95	60-95	35-65	15-35
	34-36	*Ashy coarse sand	*SP-SM, SC-SM	*A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-15	NP-5
	36-60	*Very fine sandy loam, silt loam, sandy loam, silty clay loam, loam	*CL, SC	*A-4, A-7	0	0	100	100	60-95	40-95	25-45	10-25
Reese	0-4	*Very fine sandy loam	*CL, ML	*A-4	0	0	100	100	85-95	50-65	20-35	NP-10
	4-10	*Loam	*ML, CL-ML, CL	*A-4, A-6	0	0	100	100	85-95	60-75	20-40	5-15
	10-33	*Loam, clay loam	*CL	*A-6, A-4	0	0	100	100	85-100	60-80	30-40	10-20
	33-44	*Loam, coarse sandy loam, sandy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	60-90	35-65	20-35	5-15
	44-60	*Loam, sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-75	20-35	5-15
386:												
Kewake	0-4	*Ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-20	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
Turpin	0-3	*Fine sandy loam	*CL, SM	*A-4	0	0	100	100	70-85	40-55	15-30	NP-10
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25
387:												
Kewake, sodic	0-4	*Ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-20	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
387:												
Turpin, sodic---	0-3	*Sandy loam	*SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	15-30	NP-10
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25
388:												
Krackle, north--	0-4	*Gravelly sandy loam	*SC, CL, SC-SM	*A-4, A-2	0-5	5-15	70-90	60-85	50-70	35-60	25-35	5-10
	4-15	*Very stony clay loam, very cobbly clay loam, very cobbly loam	*CL, ML	*A-6, A-4	15-40	25-45	80-90	70-85	65-85	50-70	35-45	10-20
	15-30	*Very stony clay loam, very cobbly loam	*CL, ML	*A-6, A-4	25-45	15-40	80-90	70-85	65-85	50-70	35-45	10-20
	30-40	*Bedrock			---	---	---	---	---	---	---	---
Krackle, south--	0-4	*Gravelly sandy loam	*SC, CL, SC-SM	*A-4, A-2	0-5	5-15	70-90	60-85	50-70	35-60	25-35	5-10
	4-15	*Very stony clay loam, very cobbly clay loam, very cobbly loam	*CL, ML	*A-6, A-4	15-40	25-45	80-90	70-85	65-85	50-70	35-45	10-20
	15-30	*Very stony clay loam, very cobbly loam	*CL, ML	*A-6, A-4	25-45	15-40	80-90	70-85	65-85	50-70	35-45	10-20
	30-40	*Bedrock			---	---	---	---	---	---	---	---
389:												
Kunceider-------	0-5	*Cobbly ashy loamy sand	*SC-SM, SW-SM, SM	*A-1	0	15-40	70-90	65-85	25-50	10-20	20-30	NP-5
	5-9	*Very cobbly ashy loamy sand	*SC-SM, GP-GM	*A-1	0	25-60	50-85	45-80	20-50	5-20	15-25	NP-5
	9-14	*Extremely gravelly ashy sandy loam, very cobbly ashy sandy loam, very cobbly ashy loamy sand, extremely gravelly ashy loamy sand	*GW-GM, GC, GW	*A-1, A-2	0	30-40	30-75	25-70	10-50	0-30	15-25	NP-10
	14-24	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
390:												
Kunceider-------	0-5	*Ashy sandy loam	*SC-SM, SM	*A-2, A-1	0	0-5	85-100	80-100	50-75	20-30	20-35	NP-10
	5-9	*Very cobbly ashy loamy sand	*SC-SM, GP-GM	*A-1	0	25-60	50-85	45-80	20-50	5-20	15-25	NP-5
	9-14	*Extremely gravelly ashy sandy loam, very cobbly ashy sandy loam, very cobbly ashy loamy sand, extremely gravelly ashy loamy sand	*GW-GM, GC, GW	*A-1, A-2	0	30-40	30-75	25-70	10-50	0-30	15-25	NP-10
	14-24	*Bedrock			---	---	---	---	---	---	---	---
Fort Rock-------	0-5	*Ashy loamy sand	*SC-SM, SM	*A-2	0	0	95-100	85-100	60-75	25-30	0-25	NP-5
	5-16	*Gravelly ashy loamy coarse sand, ashy loamy coarse sand, gravelly ashy loamy sand, ashy loamy sand	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	60-90	30-60	10-25	15-25	NP-5
	16-28	*Ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-1, A-2	0	0	100	55-100	30-70	5-25	15-25	NP-5
	28-35	*Very gravelly loamy sand, gravelly loamy sand	*SP-SM SC-SM, SW-SM	*A-1	0	0	100	45-75	25-50	5-20	0-20	NP-5
	35-39	*Very gravelly sandy loam, gravelly loamy sand, very gravelly loamy sand, gravelly sandy loam	*SM, SW-SM, SC-SM	*A-1, A-2	0	0	100	45-75	25-55	5-30	0-20	NP-5
	39-60	*Extremely gravelly sand, very gravelly sand	*SP, SW-SC	*A-1	0	0	100	20-35	10-25	0-5	0-15	NP-5
391:												
Kunceider-------	0-5	*Cobbly ashy loamy sand	*SC-SM, SW-SM, SM	*A-1	0	15-40	70-90	65-85	25-50	10-20	20-30	NP-5
	5-9	*Very cobbly ashy loamy sand	*SC-SM, GP-GM	*A-1	0	25-60	50-85	45-80	20-50	5-20	15-25	NP-5
	9-14	*Extremely gravelly ashy sandy loam, very cobbly ashy sandy loam, very cobbly ashy loamy sand, extremely gravelly ashy loamy sand	*GW-GM, GC, GW	*A-1, A-2	0	30-40	30-75	25-70	10-50	0-30	15-25	NP-10
	14-24	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
391:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
392:												
Kunceider-------	0-5	*Ashy loamy sand	*SC-SM, SM	*A-2, A-1	0	0-5	85-100	80-100	50-75	20-30	20-30	NP-5
	5-9	*Very cobbly ashy loamy sand	*SC-SM, GP-GM	*A-1	0	25-60	50-85	45-80	20-50	5-20	15-25	NP-5
	9-14	*Extremely gravelly ashy sandy loam, very cobbly ashy sandy loam, very cobbly ashy loamy sand, extremely gravelly ashy loamy sand	*GW-GM, GC, GW	*A-1, A-2	0	30-40	30-75	25-70	10-50	0-30	15-25	NP-10
	14-24	*Bedrock			---	---	---	---	---	---	---	---
Wegert----------	0-2	*Ashy loamy sand	*SM	*A-1, A-2	0	0	90-100	85-100	40-75	15-25	20-30	NP-5
	2-6	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-2, A-1	0	0	80-100	75-100	35-70	10-30	20-25	NP-5
	6-27	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-1, A-2	0	0-15	80-100	75-100	35-70	10-30	15-30	NP-10
	27-31	*Extremely cobbly ashy loamy sand, very cobbly ashy loamy sand	*GP-GC, SC-SM	*A-1, A-2	0	55-80	35-100	20-100	10-70	5-20	15-25	NP-5
	31-41	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
393:												
Laidlaw---------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-5	*Ashy loamy coarse sand	*SC-SM, SM	*A-2, A-1	0	0	100	85-100	40-75	15-30	15-25	NP-5
	5-13	*Ashy loamy sand, ashy loamy coarse sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	30-75	10-30	10-15	NP-5
	13-31	*Ashy loamy coarse sand, ashy loamy sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	30-75	10-30	10-15	NP-5
	31-37	*Cobbly ashy sandy loam, ashy fine sandy loam, ashy sandy loam, gravelly ashy fine sandy loam	*SC-SM, SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	35-70	20-40	15-25	NP-10
	37-50	*Ashy fine sandy loam, ashy sandy loam, cobbly ashy sandy loam, gravelly ashy fine sandy loam	*SC-SM, SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	35-70	20-40	15-25	NP-10
	50-60	*Ashy loamy fine sand, ashy fine sandy loam, cobbly ashy loamy sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	30-75	10-40	10-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
394:												
Laidlaw---------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-5	*Ashy loamy sand	*SC-SM, SM	*A-2, A-1	0	0	100	85-100	40-75	15-30	15-25	NP-5
	5-13	*Ashy loamy sand, ashy loamy coarse sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	30-75	10-30	10-15	NP-5
	13-31	*Ashy loamy coarse sand, ashy loamy sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	30-75	10-30	10-15	NP-5
	31-37	*Cobbly ashy sandy loam, ashy fine sandy loam, ashy sandy loam, gravelly ashy fine sandy loam	*SC-SM, SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	35-70	20-40	15-25	NP-10
	37-50	*Ashy fine sandy loam, ashy sandy loam, cobbly ashy sandy loam, gravelly ashy fine sandy loam	*SC-SM, SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	35-70	20-40	15-25	NP-10
	50-60	*Ashy loamy fine sand, ashy fine sandy loam, cobbly ashy loamy sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	30-75	10-40	10-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
395:												
Laidlaw, dry----	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-5	*Ashy loamy sand	*SC-SM, SM	*A-2, A-1	0	0	100	85-100	40-75	15-30	15-25	NP-5
	5-13	*Ashy loamy sand, ashy loamy coarse sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	30-75	10-30	10-15	NP-5
	13-31	*Ashy loamy coarse sand, ashy loamy sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	30-75	10-30	10-15	NP-5
	31-37	*Cobbly ashy sandy loam, ashy fine sandy loam, ashy sandy loam, gravelly ashy fine sandy loam	*SC-SM, SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	35-70	20-40	15-25	NP-10
	37-50	*Ashy fine sandy loam, ashy sandy loam, cobbly ashy sandy loam, gravelly ashy fine sandy loam	*SC-SM, SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	35-70	20-40	15-25	NP-10
	50-60	*Ashy loamy fine sand, ashy fine sandy loam, cobbly ashy loamy sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	30-75	10-40	10-15	NP-5
Wanoga, dry-----	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	50-70	15-30	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
397:												
Lapham----------	0-2	*Gravelly ashy loamy sand	*SM, SP-SM, SC-SM	*A-1	0	0	55-80	50-75	20-50	5-20	20-25	NP-5
	2-16	*Gravelly ashy loamy sand, gravelly ashy sandy loam	*SM, GP-GM	*A-1, A-2	0	0	55-80	50-75	25-50	10-30	20-30	NP-10
	16-20	*Extremely gravelly ashy loam	*GW-GC, GP-GC, GC	*A-2, A-1	0	0-25	20-40	15-35	5-20	5-15	20-30	5-15
	20-60	*Extremely gravelly ashy sandy loam	*GP-GC, GP, GC	*A-1, A-2	0	10-30	15-35	10-30	5-20	0-15	15-25	NP-10
398:												
Lapine, north---	0-4	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-15	NP-5
	4-12	*Paragravelly ashy loamy coarse sand, very paragravelly ashy coarse sand	*SM, SP-SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	5-30	10-15	NP-5
	12-56	*Extremely paragravelly ashy coarse sand, ashy coarse sand, ashy sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SP-SM, SC-SM	*A-2, A-1	0	0	100	100	50-70	5-15	10-15	NP-5
	56-60	*Silty clay loam, loam, sandy loam, fine sandy loam	*CL, SC	*A-6, A-7, A-2	0	0	100	100	50-100	30-95	25-45	10-25
399:												
Lapine----------	0-4	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-15	NP-5
	4-12	*Paragravelly ashy loamy coarse sand, very paragravelly ashy coarse sand	*SM, SP-SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	5-30	10-15	NP-5
	12-56	*Extremely paragravelly ashy coarse sand, ashy coarse sand, ashy sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SP-SM, SC-SM	*A-2, A-1	0	0	100	100	50-70	5-15	10-15	NP-5
	56-60	*Silty clay loam, loam, sandy loam, fine sandy loam	*CL, SC	*A-6, A-7, A-2	0	0	100	100	50-100	30-95	25-45	10-25

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
400: Lapine----------	0-4	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-15	NP-5
	4-12	*Paragravelly ashy loamy coarse sand, very paragravelly ashy coarse sand	*SM, SP-SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	5-30	10-15	NP-5
	12-56	*Extremely paragravelly ashy coarse sand, ashy coarse sand, ashy sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SP-SM, SC-SM	*A-2, A-1	0	0	100	100	50-70	5-15	10-15	NP-5
	56-60	*Silty clay loam, loam, sandy loam, fine sandy loam	*CL, SC	*A-6, A-7, A-2	0	0	100	100	50-100	30-95	25-45	10-25
401: Lastcall--------	0-2	*Ashy sandy loam	*SC-SM, SM	*A-2, A-1	0	0	90-95	85-90	45-65	25-35	10-25	NP-5
	2-7	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	7-13	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	13-21	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-2	0	10-25	85-95	80-90	65-80	30-50	30-40	10-20
	21-31	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-7, A-2	0	10-35	85-95	80-90	65-80	30-50	30-45	10-25
	31-41	*Bedrock			---	---	---	---	---	---	---	---
402: Lastcall, gently sloping	0-2	*Ashy sandy loam	*SC-SM, SM	*A-2, A-1	0	0	90-95	85-90	45-65	25-35	10-25	NP-5
	2-7	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	7-13	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	13-21	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-2	0	10-25	85-95	80-90	65-80	30-50	30-40	10-20
	21-31	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-7, A-2	0	10-35	85-95	80-90	65-80	30-50	30-45	10-25
	31-41	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
402: Lastcall, nearly level	0-2	*Ashy sandy loam	*SC-SM, SM	*A-2, A-1	0	0	90-95	85-90	45-65	25-35	10-25	NP-5
	2-7	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	7-13	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	13-21	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-2	0	10-25	85-95	80-90	65-80	30-50	30-40	10-20
	21-31	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-7, A-2	0	10-35	85-95	80-90	65-80	30-50	30-45	10-25
	31-41	*Bedrock			---	---	---	---	---	---	---	---
403: Lastcall	0-2	*Ashy sandy loam	*SC-SM, SM	*A-2, A-1	0	0	90-95	85-90	45-65	25-35	10-25	NP-5
	2-7	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	7-13	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	13-21	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-2	0	10-25	85-95	80-90	65-80	30-50	30-40	10-20
	21-31	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-7, A-2	0	10-35	85-95	80-90	65-80	30-50	30-45	10-25
	31-41	*Bedrock			---	---	---	---	---	---	---	---
Hayespring	0-3	*Stony ashy fine sandy loam	*SM, SC-SM	*A-1, A-2	10-30	0-15	70-95	65-90	35-55	15-30	25-35	5-10
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
404:												
Lastcall--------	0-2	*Ashy fine sandy loam	*SC-SM, SC, SM	*A-4, A-2	0	0	90-95	85-90	55-75	30-50	15-30	NP-10
	2-7	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	7-13	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	13-21	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-2	0	10-25	85-95	80-90	65-80	30-50	30-40	10-20
	21-31	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-7, A-2	0	10-35	85-95	80-90	65-80	30-50	30-45	10-25
	31-41	*Bedrock			---	---	---	---	---	---	---	---
Hayespring------	0-3	*Ashy sandy loam	*SM, SC-SM	*A-4, A-2	0	0	85-100	80-100	50-70	30-40	25-35	5-10
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---
405:												
Lastcall--------	0-2	*Ashy sandy loam	*SC-SM, SM	*A-2, A-1	0	0	90-95	85-90	45-65	25-35	10-25	NP-5
	2-7	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	7-13	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	13-21	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-2	0	10-25	85-95	80-90	65-80	30-50	30-40	10-20
	21-31	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-7, A-2	0	10-35	85-95	80-90	65-80	30-50	30-45	10-25
	31-41	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
405:												
Jacksplace------	0-4	*Ashy loamy fine sand	*SC-SM, SM	*A-2, A-1	0	0	95-100	90-100	45-75	15-30	20-25	NP-5
	4-9	*Cobbly ashy sandy loam	*SC-SM, SM	*A-2, A-1	0-5	15-30	75-95	70-90	35-65	15-35	20-30	NP-5
	9-12	*Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	*SC, GW-GC	*A-2	15-45	15-45	45-80	40-75	15-50	10-30	25-30	10-15
	12-20	*Extremely stony ashy sandy clay loam, very stony ashy sandy loam, very stony ashy sandy clay loam	*GC, GP-GC, SC	*A-2	25-50	15-30	50-85	45-80	25-65	10-40	25-40	10-20
	20-26	*Extremely stony ashy sandy loam, very stony ashy sandy loam	*SC, GC	*A-2	30-55	15-30	55-90	50-85	30-55	15-30	25-30	10-15
	26-30	*Bedrock			---	---	---	---	---	---	---	---
Embal-----------	0-2	*Ashy silt loam	*CL-ML, ML	*A-4	0	0	85-100	80-100	70-100	55-90	10-15	NP-5
	2-6	*Ashy fine sandy loam, ashy sandy loam, ashy silt loam	*SC, SC-SM	*A-2, A-4	0	0	85-100	80-100	45-80	30-70	20-30	5-10
	6-25	*Ashy fine sandy loam, ashy sandy loam	*SC, SC-SM	*A-2, A-4	0	0	80-100	75-100	40-80	30-70	20-30	5-10
	25-34	*Cobbly ashy coarse sandy loam, gravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1, A-4	0	0-25	35-100	30-100	15-70	15-40	20-30	5-10
	34-42	*Gravelly ashy sandy loam, very paragravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1	0	0-15	65-95	60-90	35-65	15-35	20-30	5-10
	42-60	*Cemented gravelly ashy sandy loam, cemented very paragravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1	0	0-15	65-95	60-90	35-65	15-35	20-30	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
407:												
Lastcall--------	0-2	*Stony ashy sandy loam	*SC-SM, SC, SM	*A-1, A-2	15-30	0-15	75-85	70-80	35-55	15-30	15-30	NP-10
	2-7	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	7-13	*Ashy sandy loam, ashy loamy sand	*SC-SM, SC, SM	*A-2, A-1	0	0	90-95	85-90	40-70	15-35	15-30	NP-10
	13-21	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-2	0	10-25	85-95	80-90	65-80	30-50	30-40	10-20
	21-31	*Cobbly ashy sandy clay loam, ashy sandy clay loam	*SC	*A-6, A-7, A-2	0	10-35	85-95	80-90	65-80	30-50	30-45	10-25
	31-41	*Bedrock			---	---	---	---	---	---	---	---
Moonbeam--------	0-3	*Stony ashy fine sandy loam	*SC-SM, SM	*A-4, A-2	15-30	0-15	70-95	65-90	50-75	35-45	25-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
408:												
Leevan----------	0-3	*Very gravelly loam	*GC	*A-2, A-6	0	0-15	35-65	30-60	25-55	20-45	30-35	10-15
	3-16	*Very gravelly clay loam, extremely cobbly loam	*GC, GW-GC	*A-2, A-7	0	10-25	40-60	35-55	20-50	10-45	30-45	10-20
	16-22	*Extremely cobbly loam	*GC, GP-GC	*A-2, A-6	0	45-55	25-50	20-45	15-40	10-40	30-35	10-15
	22-32	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
408:												
Fitzwater, south	0-3	*Very gravelly loamy sand	*GM, GP-GM	*A-1	0-10	0-25	35-60	30-55	15-45	5-20	5-20	NP-5
	3-7	*Very gravelly sandy loam	*GP-GC, GC	*A-1, A-2	0-10	10-25	35-65	30-60	15-35	10-20	20-30	5-10
	7-33	*Extremely gravelly sandy loam, extremely cobbly clay loam, extremely cobbly loam, very gravelly loam, extremely gravelly loam, very cobbly loam, very cobbly clay loam	*GP-GC, GP, GC	*A-2, A-6	0-25	10-55	20-65	15-60	5-60	0-50	25-40	10-20
	33-60	*Extremely gravelly sandy loam, extremely cobbly loam, extremely stony sandy loam, extremely stony loam, extremely cobbly sandy loam	*GP-GC, GP, GC	*A-2, A-6	0-50	25-65	20-70	15-65	5-65	0-50	25-35	10-20
Chen------------	0-24	*Very gravelly loam	*GC	*A-2	0-15	0-25	30-45	25-40	20-40	15-30	30-40	10-20
	24-31	*Very gravelly loam	*GC	*A-2	0-15	0-25	30-45	25-40	20-40	15-30	30-40	10-20
	31-41	*Very gravelly sandy loam	*GC-GM, GC, GP-GC	*A-1, A-2	0-15	0-25	30-50	25-45	15-30	10-20	20-30	5-10
	41-51	*Bedrock			---	---	---	---	---	---	---	---
409:												
Leevan, north---	0-3	*Very cobbly loam	*SC, GC	*A-6, A-2	0-10	30-40	55-80	50-75	35-65	25-50	30-40	10-20
	3-7	*Very cobbly loam, gravelly clay loam	*SC, GC, CL	*A-6, A-7, A-2	0-10	10-35	55-90	50-85	40-80	30-65	35-45	15-25
	7-16	*Very gravelly clay loam, gravelly clay	*GC, CH	*A-7, A-2	0	10-15	55-80	50-75	45-70	35-65	45-60	25-35
	16-31	*Very cobbly clay, very gravelly clay	*CH, GC	*A-7, A-2	0	30-45	45-80	40-75	25-70	20-65	50-70	30-45
	31-41	*Bedrock			---	---	---	---	---	---	---	---
Lambring, north	0-5	*Very gravelly loam	*GM, GC-GM, GC	*A-2, A-6, A-1	0-10	0-15	40-60	35-55	30-50	25-40	25-40	5-15
	5-20	*Very cobbly sandy loam	*GP-GC, SM	*A-2, A-1	0-15	30-55	45-90	40-80	15-55	10-30	25-35	5-10
	20-50	*Extremely cobbly loamy sand, very cobbly loam, extremely cobbly sandy loam, very gravelly loam	*GP-GC, GC	*A-1, A-4	0-15	25-55	30-75	25-65	10-60	0-50	15-25	5-10
	50-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	 AASHTO	Fragments >10 inches	 3-10 inches	Percentage passing sieve number-- 4	 10	 40	 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
409:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
410:												
Legler----------	0-4	*Clay loam	*CL, CH	*A-6, A-7	0	0	95-100	90-100	70-100	55-80	40-50	20-30
	4-8	*Clay loam, loam, fine sandy loam	*CL, SC	*A-6, A-7, A-4	0	0	90-100	85-100	60-100	40-80	25-45	10-25
	8-43	*Clay loam, loam, fine sandy loam	*CL, SC	*A-6, A-7, A-4	0	0	85-100	80-100	60-100	40-80	25-45	10-25
	43-61	*Loam, silt loam	*CL	*A-6, A-4	0	0	85-100	80-100	65-100	50-90	30-40	10-15
411:												
Bridgewell------	0-7	*Ashy loam	*CL	*A-4, A-6	0	0	95-100	90-100	75-90	50-75	30-35	10-15
	7-12	*Ashy loam, ashy clay loam	*CL	*A-4, A-6	0	0	95-100	90-100	75-95	55-80	30-40	10-20
	12-60	*Very fine sandy loam, loam, silt loam, fine sandy loam	*CL, SC-SM	*A-4	0	0	95-100	90-100	75-90	45-70	20-30	5-10
Legler----------	0-4	*Loam	*CL	*A-6, A-4	0	0	90-100	85-100	65-95	50-75	30-40	10-20
	4-8	*Clay loam, loam, fine sandy loam	*CL, SC	*A-6, A-7, A-4	0	0	90-100	85-100	60-100	40-80	25-45	10-25
	8-43	*Clay loam, loam, fine sandy loam	*CL, SC	*A-6, A-7, A-4	0	0	85-100	80-100	60-100	40-80	25-45	10-25
	43-61	*Loam, silt loam	*CL	*A-6, A-4	0	0	85-100	80-100	65-100	50-90	30-40	10-15
412:												
Bridgewell------	0-7	*Ashy loam	*CL	*A-4, A-6	0	0	95-100	90-100	75-90	50-75	30-35	10-15
	7-12	*Ashy loam, ashy clay loam	*CL	*A-4, A-6	0	0	95-100	90-100	75-95	55-80	30-40	10-20
	12-60	*Very fine sandy loam, loam, silt loam, fine sandy loam	*CL, SC-SM	*A-4	0	0	95-100	90-100	75-90	45-70	20-30	5-10
Chancelakes-----	0-1	*Ashy silt loam	*MH	*A-5	0	0	100	100	95-100	70-100	50-60	NP-5
	1-10	*Clay, clay loam, silty clay	*CH, CL	*A-7, A-6	0	0	100	100	95-100	70-100	40-55	25-35
	10-29	*Clay, clay loam, silty clay loam	*CH, CL	*A-7, A-6	0	0	100	100	95-100	65-95	40-60	25-40
	29-58	*Clay, clay loam, silty clay	*CL, CH	*A-7, A-6	0	0	100	100	95-100	65-100	40-60	25-40
	58-63	*Ashy sandy clay loam, ashy clay loam	*MH, SM	*A-5	0	0	100	100	90-100	45-85	50-60	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
413:												
Lithic Haploxerolls, cool-----------	0-2	*Extremely stony ashy fine sandy loam	*GP-GC, GC	*A-1, A-2	40-60	15-45	20-70	15-65	5-50	5-30	20-30	5-10
	2-11	*Extremely stony ashy fine sandy loam, very cobbly ashy loam, very stony ashy fine sandy loam, extremely gravelly ashy sandy loam, very gravelly ashy clay loam	*GC-GM, GP-GC, GC	*A-1, A-6	0-55	25-55	30-60	25-55	15-50	10-45	20-40	5-20
	11-21	*Bedrock			---	---	---	---	---	---	---	---
Lava flows------	0-60	*Bedrock			---	---	---	---	---	---	---	---
414:												
Lithic Haploxerolls, dry------------	0-2	*Ashy fine sandy loam	*CL-ML, SM	*A-4	0	0-5	90-100	85-100	65-85	45-55	10-15	NP-5
	2-11	*Extremely stony ashy fine sandy loam, very cobbly ashy loam, very stony ashy fine sandy loam, extremely gravelly ashy sandy loam, very gravelly ashy clay loam	*GC-GM, GP-GC, GC	*A-1, A-6	0-55	25-55	30-60	25-55	15-50	10-45	20-40	5-20
	11-21	*Bedrock			---	---	---	---	---	---	---	---
Lava flows------	0-60	*Bedrock			---	---	---	---	---	---	---	---
415:												
Locane----------	0-2	*Cobbly clay loam	*CL	*A-6, A-7	0	15-40	75-95	65-90	65-90	50-70	40-45	20-25
	2-10	*Clay loam	*CL	*A-6, A-7	0	0-10	80-100	75-90	65-85	50-80	40-45	20-25
	10-18	*Very cobbly clay, very gravelly clay, very gravelly clay loam	*GC, CH	*A-7, A-2	0	25-50	55-80	50-70	40-70	30-65	50-60	30-40
	18-28	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
416:												
Locane----------	0-2	*Cobbly clay loam	*CL	*A-6, A-7	0	15-40	75-95	65-90	65-90	50-70	40-45	20-25
	2-10	*Clay loam	*CL	*A-6, A-7	0	0-10	80-100	75-90	65-85	50-80	40-45	20-25
	10-18	*Very cobbly clay, very gravelly clay, very gravelly clay loam	*GC, CH	*A-7, A-2	0	25-50	55-80	50-70	40-70	30-65	50-60	30-40
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Anawalt---------	0-3	*Loam	*CL, SC-SM	*A-4, A-6, A-2	0-10	0-10	80-95	75-90	55-85	35-75	20-35	5-15
	3-7	*Cobbly clay loam, clay loam, clay, cobbly clay	*CL, CH, SC	*A-6, A-7	0-10	0-25	80-100	70-90	55-90	40-90	35-65	20-45
	7-18	*Cobbly clay, cobbly clay loam, clay loam, clay	*CL, CH, SC	*A-7, A-6	0-10	0-25	80-100	70-90	55-90	40-90	40-65	25-45
	18-28	*Bedrock			---	---	---	---	---	---	---	---
417:												
Locane----------	0-2	*Very gravelly sandy loam	*GC-GM, GP-GM, SC	*A-1, A-2	0	0-25	45-65	40-60	20-35	10-20	15-25	NP-10
	2-10	*Clay loam	*CL	*A-6, A-7	0	0-10	80-100	75-90	65-85	50-80	40-45	20-25
	10-18	*Very cobbly clay, very gravelly clay, very gravelly clay loam	*GC, CH	*A-7, A-2	0	25-50	55-80	50-70	40-70	30-65	50-60	30-40
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Deseed----------	0-2	*Very cobbly sandy loam	*SC, GP-GC	*A-2	0-10	25-35	50-80	45-75	25-55	10-30	20-30	5-10
	2-6	*Cobbly loam	*SC, CL, GC	*A-6, A-2	0-10	15-40	65-95	60-90	50-80	35-70	25-35	10-15
	6-11	*Gravelly clay loam, clay loam	*CL, CH, GC	*A-7, A-2	0-10	0-10	60-95	55-90	45-85	35-80	40-50	25-30
	11-17	*Clay, gravelly clay loam, clay loam	*CH, GC	*A-7, A-2	0-10	0-10	60-100	55-100	45-85	35-80	45-60	25-35
	17-24	*Gravelly sandy clay loam, gravelly clay loam	*SC, GC	*A-2, A-7	0-10	0-10	60-80	55-75	50-70	25-45	40-50	20-30
	24-34	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
418:												
Locolake--------	0-2	*Extremely cobbly sandy loam	*GW-GC, GC-GM	*A-1	0-10	40-45	30-45	25-40	10-30	5-15	20-25	NP-5
	2-4	*Sandy loam, cobbly fine sandy loam	*SC-SM, SC	*A-2, A-1, A-4	0	0-25	85-95	80-90	45-75	25-50	20-25	5-10
	4-7	*Clay loam, sandy clay loam	*CL, CH, SC	*A-7, A-2	0	0	95-100	90-100	70-100	30-80	40-50	20-30
	7-12	*Clay loam, sandy clay loam, cobbly sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	10-25	85-95	80-90	65-90	30-70	35-45	20-25
	12-19	*Extremely gravelly loam, very gravelly loam	*GC, GP-GC	*A-2, A-6	0	10-30	25-60	20-55	15-50	10-40	30-35	10-20
	19-23	*Cemented material			---	---	---	---	---	---	---	---
	23-33	*Bedrock			---	---	---	---	---	---	---	---
419:												
Locolake--------	0-2	*Fine sandy loam	*CL-ML, SM	*A-4	0	0	90-100	85-100	75-85	40-55	20-25	NP-5
	2-4	*Sandy loam, cobbly fine sandy loam	*SC-SM, SC	*A-2, A-1, A-4	0	0-25	85-95	80-90	45-75	25-50	20-25	5-10
	4-7	*Clay loam, sandy clay loam	*CL, CH, SC	*A-7, A-2	0	0	95-100	90-100	70-100	30-80	40-50	20-30
	7-12	*Clay loam, sandy clay loam, cobbly sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	10-25	85-95	80-90	65-90	30-70	35-45	20-25
	12-19	*Extremely gravelly loam, very gravelly loam	*GC, GP-GC	*A-2, A-6	0	10-30	25-60	20-55	15-50	10-40	30-35	10-20
	19-23	*Cemented material			---	---	---	---	---	---	---	---
	23-33	*Bedrock			---	---	---	---	---	---	---	---
McConnel--------	0-1	*Gravelly loamy sand	*SM, SC-SM	*A-1, A-2	0	0-10	60-80	55-75	30-55	15-25	0-25	NP-5
	1-12	*Sandy loam, loam	*SC-SM, SM, ML, CL-ML	*A-2, A-1, A-4	0	0	80-100	75-95	50-85	25-70	15-25	NP-10
	12-18	*Gravelly sandy loam, gravelly loamy sand, very gravelly sand, extremely gravelly sand, very gravelly sandy loam	*GC-GM, SC-SM, SM, GM	*A-1, A-2	0	0	25-75	20-70	10-50	5-30	15-25	NP-10
	18-60	*Very gravelly sand, extremely cobbly sand, extremely gravelly sand, very gravelly loamy sand, extremely gravelly coarse sand	*GP-GM	*A-1	0	0-15	15-55	10-50	5-30	5-10	10-20	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
420:												
Lostforest------	0-2	*Ashy very fine sandy loam	*ML, SM	*A-4	0	0-10	85-100	85-100	65-95	40-65	15-25	NP-5
	2-5	*Ashy fine sandy loam	*SM	*A-4, A-2	0	0-10	90-100	85-100	55-85	30-55	15-25	NP-5
	5-11	*Ashy loam, gravelly ashy loam, ashy sandy loam, gravelly ashy sandy loam, cobbly ashy sandy loam, cobbly ashy loam	*CL-ML, SC-SM	*A-4, A-1	0	0-25	60-95	55-90	30-85	15-70	20-30	5-10
	11-18	*Cobbly ashy loam, gravelly ashy loam, gravelly ashy sandy loam, cobbly ashy sandy loam	*CL-ML, SC-SM	*A-4, A-1	0	15-40	70-95	65-90	35-85	15-70	20-30	5-10
	18-22	*Cobbly ashy loam, ashy loam, ashy sandy loam, gravelly ashy loam, gravelly ashy sandy loam, cobbly ashy sandy loam	*CL-ML, SC-SM	*A-4, A-1	0	10-30	75-95	70-90	40-85	20-70	25-30	5-10
	22-32	*Bedrock			---	---	---	---	---	---	---	---
Sandrock--------	0-3	*Channery ashy fine sandy loam	*SC, SC-SM	*A-4, A-2	0	15-30	85-100	80-100	55-80	30-50	20-30	5-10
	3-8	*Channery ashy fine sandy loam, gravelly ashy fine sandy loam, channery ashy very fine sandy loam, gravelly ashy very fine sandy loam	*SC, SC-SM, CL	*A-4, A-6, A-2	0	10-30	85-100	80-100	55-80	30-60	20-30	5-15
	8-12	*Channery ashy sandy clay loam, ashy sandy clay loam, channery ashy clay loam, ashy clay loam	*SC, CL	*A-6, A-2	0	10-40	95-100	90-100	55-90	25-80	30-40	10-20
	12-22	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
420:												
Morehouse	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15
422:												
Ludi	0-3	*Gravelly ashy fine sandy loam	*SC-SM, GC-GM, SC	*A-2, A-4, A-1	0	0-10	55-80	50-75	40-60	25-40	20-30	5-10
	3-12	*Very gravelly ashy very fine sandy loam, very gravelly ashy loam, extremely gravelly ashy sandy loam, very gravelly ashy sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-25	25-65	20-60	10-50	5-40	20-30	5-10
	12-35	*Extremely cobbly ashy very fine sandy loam, very gravelly ashy sandy loam, extremely gravelly ashy sandy loam, very cobbly ashy very fine sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-40	25-65	20-60	10-55	5-40	15-25	5-10
	35-60	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-5	NP

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
423: Ludi, low precipitation, north----------	0-3	*Gravelly ashy sandy loam	*SC-SM, GC-GM, SC	*A-1, A-2	0	0-10	55-80	50-75	35-50	15-35	20-30	5-10
	3-12	*Very gravelly ashy very fine sandy loam, very gravelly ashy loam, extremely gravelly ashy sandy loam, very gravelly ashy sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-25	25-65	20-60	10-50	5-40	20-30	5-10
	12-35	*Extremely cobbly ashy very fine sandy loam, very gravelly ashy sandy loam, extremely gravelly ashy sandy loam, very cobbly ashy very fine sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-40	25-65	20-60	10-55	5-40	15-25	5-10
	35-60	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-5	NP
424: Ludi, low precipitation, south----------	0-3	*Gravelly ashy sandy loam	*SC-SM, SC	*A-1, A-2	0	0-10	55-80	50-75	35-50	15-35	20-30	5-10
	3-12	*Very gravelly ashy very fine sandy loam, very gravelly ashy loam, extremely gravelly ashy sandy loam, very gravelly ashy sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-25	25-65	20-60	10-50	5-40	20-30	5-10
	12-35	*Extremely cobbly ashy very fine sandy loam, very gravelly ashy sandy loam, extremely gravelly ashy sandy loam, very cobbly ashy very fine sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-40	25-65	20-60	10-55	5-40	15-25	5-10
	35-60	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-5	NP

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
425: Ludi, low precipitation, north----------	0-3	*Gravelly ashy sandy loam	*SC-SM, SC	*A-1, A-2	0	0-10	55-80	50-75	35-50	15-35	20-30	5-10
	3-12	*Very gravelly ashy very fine sandy loam, very gravelly ashy loam, extremely gravelly ashy sandy loam, very gravelly ashy sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-25	25-65	20-60	10-50	5-40	20-30	5-10
	12-35	*Extremely cobbly ashy very fine sandy loam, very gravelly ashy sandy loam, extremely gravelly ashy sandy loam, very cobbly ashy very fine sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-40	25-65	20-60	10-55	5-40	15-25	5-10
	35-60	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-5	NP
426: Ludi, low precipitation, south----------	0-3	*Gravelly ashy sandy loam	*SC-SM, SC	*A-1, A-2	0	0-10	55-80	50-75	35-50	15-35	20-30	5-10
	3-12	*Very gravelly ashy very fine sandy loam, very gravelly ashy loam, extremely gravelly ashy sandy loam, very gravelly ashy sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-25	25-65	20-60	10-50	5-40	20-30	5-10
	12-35	*Extremely cobbly ashy very fine sandy loam, very gravelly ashy sandy loam, extremely gravelly ashy sandy loam, very cobbly ashy very fine sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-40	25-65	20-60	10-55	5-40	15-25	5-10
	35-60	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-5	NP

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
427:												
Ludi------------	0-3	*Very gravelly ashy sandy loam	*GC-GM, GC	*A-1, A-2	0-10	0-15	40-65	35-60	30-40	15-25	20-30	5-10
	3-12	*Very gravelly ashy very fine sandy loam, very gravelly ashy loam, extremely gravelly ashy sandy loam, very gravelly ashy sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-25	25-65	20-60	10-50	5-40	20-30	5-10
	12-35	*Extremely cobbly ashy very fine sandy loam, very gravelly ashy sandy loam, extremely gravelly ashy sandy loam, very cobbly ashy very fine sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-40	25-65	20-60	10-55	5-40	15-25	5-10
	35-60	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-5	NP
428:												
Ludi, south-----	0-3	*Extremely gravelly ashy sandy loam	*GW-GC, GP-GC	*A-1, A-2	0	0-30	15-40	10-35	5-15	5-10	20-30	5-10
	3-12	*Very gravelly ashy very fine sandy loam, very gravelly ashy loam, extremely gravelly ashy sandy loam, very gravelly ashy sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-25	25-65	20-60	10-50	5-40	20-30	5-10
	12-35	*Extremely cobbly ashy very fine sandy loam, very gravelly ashy sandy loam, extremely gravelly ashy sandy loam, very cobbly ashy very fine sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-40	25-65	20-60	10-55	5-40	15-25	5-10
	35-60	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-5	NP

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
428:												
Glassbutte------	0-4	*Very gravelly ashy fine sand	*GC-GM, GM	*A-2, A-1	0	0-15	35-50	30-45	25-40	20-35	0-15	NP-5
	4-12	*Very gravelly ashy sandy loam, ashy very gravelly fine sandy loam	*GC-GM, GM	*A-1, A-2	0	0-10	35-50	30-45	25-40	20-35	20-30	NP-10
	12-22	*Very gravelly ashy sandy loam, very gravelly ashy fine sandy loam	*GC, GC-GM	*A-2, A-1	0	0-15	40-50	35-45	30-40	25-35	20-30	5-10
	22-36	*Extremely gravelly ashy loamy sand, very gravelly ashy loamy sand	*GC-GM, GM	*A-1	0	0-15	30-45	25-40	20-35	15-25	15-25	NP-5
	36-60	*Cinders	*GP, GP-GM	*A-1	0	0	10-40	0-10	0-5	0-5	0-10	NP
Ludi, north-----	0-3	*Gravelly ashy sandy loam	*SC-SM, SC	*A-1, A-2	0	0-10	55-80	50-75	35-50	15-35	20-30	5-10
	3-12	*Very gravelly ashy very fine sandy loam, very gravelly ashy loam, extremely gravelly ashy sandy loam, very gravelly ashy sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-25	25-65	20-60	10-50	5-40	20-30	5-10
	12-35	*Extremely cobbly ashy very fine sandy loam, very gravelly ashy sandy loam, extremely gravelly ashy sandy loam, very cobbly ashy very fine sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-40	25-65	20-60	10-55	5-40	15-25	5-10
	35-60	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-5	NP

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
429:												
Ludi	0-3	*Very cobbly ashy sandy loam	*SC-SM, SC, GC-GM	*A-1, A-2	0-15	30-45	50-75	45-70	20-40	15-25	20-30	5-10
	3-12	*Very gravelly ashy very fine sandy loam, very gravelly ashy loam, extremely gravelly ashy sandy loam, very gravelly ashy sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-25	25-65	20-60	10-50	5-40	20-30	5-10
	12-35	*Extremely cobbly ashy very fine sandy loam, very gravelly ashy sandy loam, extremely gravelly ashy sandy loam, very cobbly ashy very fine sandy loam	*GC-GM, GC, GP-GC	*A-2, A-1, A-4	0-10	10-40	25-65	20-60	10-55	5-40	15-25	5-10
	35-60	*Cinders	*GP	*A-1	0	0	10-40	0-10	0-5	0-5	0-5	NP
Glassbutte	0-4	*Very gravelly ashy sandy loam	*GC-GM, GM	*A-1, A-2	0	0-10	35-50	30-45	25-40	20-35	20-30	NP-10
	4-12	*Very gravelly ashy sandy loam, ashy very gravelly fine sandy loam	*GC-GM, GM	*A-1, A-2	0	0-10	35-50	30-45	25-40	20-35	20-30	NP-10
	12-22	*Very gravelly ashy sandy loam, very gravelly ashy fine sandy loam	*GC, GC-GM	*A-2, A-1	0	0-15	40-50	35-45	30-40	25-35	20-30	5-10
	22-36	*Extremely gravelly ashy loamy sand, very gravelly ashy loamy sand	*GC-GM, GM	*A-1	0	0-15	30-45	25-40	20-35	15-25	15-25	NP-5
	36-60	*Cinders	*GP, GP-GM	*A-1	0	0	10-40	0-10	0-5	0-5	0-10	NP
430:												
Lyeflat	0-2	*Ashy coarse sand	*SM, SP-SM	*A-1, A-2	0	0	95-100	90-100	45-70	5-15	0-10	NP-5
	2-15	*Loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	95-100	45-75	15-30	0-25	NP-5
	15-22	*Very gravelly loamy coarse sand	*GM, GC-GM, SM, SP-SM, GP-GM	*A-1	0	0-5	35-60	30-50	15-30	5-15	0-25	NP-5
	22-32	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
431:												
Lyeflat----------	0-3	*Very gravelly very fine sandy loam	*GC, GC-GM	*A-2, A-1	0	0-25	40-60	35-55	30-55	15-30	25-30	5-10
	3-11	*Gravelly sandy loam, sandy loam, loam	*SC, CL, SC-SM	*A-2, A-4, A-1	0	0-15	60-100	55-100	35-95	15-75	25-30	5-10
	11-21	*Bedrock			---	---	---	---	---	---	---	---
432:												
Lyeflat, gravelly sandy loam surface---	0-3	*Gravelly sandy loam	*SC, SC-SM	*A-2, A-1	0	0-10	60-80	50-75	35-50	15-30	25-30	5-10
	3-11	*Gravelly sandy loam, sandy loam, loam	*SC, CL, SC-SM	*A-2, A-4, A-1	0	0-15	60-100	55-100	35-95	15-75	25-30	5-10
	11-21	*Bedrock			---	---	---	---	---	---	---	---
Lyeflat, very cobbly sandy loam surface---	0-3	*Very cobbly sandy loam	*GC, GP-GC	*A-2, A-1	0-10	15-40	40-70	35-65	25-50	10-30	25-30	5-10
	3-11	*Gravelly sandy loam, sandy loam, loam	*SC, CL, SC-SM	*A-2, A-4, A-1	0	0-15	60-100	55-100	35-95	15-75	25-30	5-10
	11-21	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
433:												
Lyeflat----------	0-3	*Very cobbly sandy loam	*GC, GP-GC	*A-2, A-1	0-10	15-40	40-70	35-65	25-50	10-30	25-30	5-10
	3-11	*Gravelly sandy loam, sandy loam, loam	*SC, CL, SC-SM	*A-2, A-4, A-1	0	0-15	60-100	55-100	35-95	15-75	25-30	5-10
	11-21	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
434:												
McConnel	0-1	*Cobbly sandy loam	*SC-SM, SM	*A-2, A-1	0	25-30	75-95	70-90	40-65	20-35	15-25	NP-5
	1-12	*Sandy loam, loam	*SC-SM, SM, ML, CL-ML	*A-2, A-1, A-4	0	0	80-100	75-95	50-85	25-70	15-25	NP-10
	12-18	*Gravelly sandy loam, gravelly loamy sand, very gravelly sand, extremely gravelly sand, very gravelly sandy loam	*GC-GM, SC-SM, SM, GM	*A-1, A-2	0	0	25-75	20-70	10-50	5-30	15-25	NP-10
	18-60	*Very gravelly sand, extremely cobbly sand, extremely gravelly sand, very gravelly loamy sand, extremely gravelly coarse sand	*GP-GM	*A-1	0	0-15	15-55	10-50	5-30	5-10	10-20	NP-5
435:												
McConnel, sodic substratum	0-1	*Gravelly sandy loam	*SC-SM, GM	*A-2, A-1	0	0-10	60-80	55-75	35-50	20-30	15-30	NP-10
	1-12	*Sandy loam, loam	*SC-SM, SM, ML, CL-ML	*A-2, A-1, A-4	0	0	80-100	75-95	50-85	25-70	15-25	NP-10
	12-18	*Gravelly sandy loam, gravelly loamy sand, very gravelly sand, extremely gravelly sand, very gravelly sandy loam	*GC-GM, SC-SM, SM, GM	*A-1, A-2	0	0	25-75	20-70	10-50	5-30	15-25	NP-10
	18-60	*Very gravelly sand, extremely cobbly sand, extremely gravelly sand, very gravelly loamy sand, extremely gravelly coarse sand	*GP-GM	*A-1	0	0-15	15-55	10-50	5-30	5-10	10-20	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
436:												
McConnel--------	0-1	*Very gravelly sandy loam	*GC-GM	*A-1	0	0-15	35-55	30-50	20-30	10-20	15-25	NP-5
	1-12	*Sandy loam, loam	*SC-SM, SM, ML, CL-ML	*A-2, A-1, A-4	0	0	80-100	75-95	50-85	25-70	15-25	NP-10
	12-18	*Gravelly sandy loam, gravelly loamy sand, very gravelly sand, extremely gravelly sand, very gravelly sandy loam	*GC-GM, SC-SM, SM, GM	*A-1, A-2	0	0	25-75	20-70	10-50	5-30	15-25	NP-10
	18-60	*Very gravelly sand, extremely cobbly sand, extremely gravelly sand, very gravelly loamy sand, extremely gravelly coarse sand	*GP-GM	*A-1	0	0-15	15-55	10-50	5-30	5-10	10-20	NP-5
437:												
McConnel--------	0-1	*Very gravelly sandy loam	*GC-GM	*A-1	0	0-15	35-55	30-50	20-30	10-20	15-25	NP-5
	1-12	*Sandy loam, loam	*SC-SM, SM, ML, CL-ML	*A-2, A-1, A-4	0	0	80-100	75-95	50-85	25-70	15-25	NP-10
	12-18	*Gravelly sandy loam, gravelly loamy sand, very gravelly sand, extremely gravelly sand, very gravelly sandy loam	*GC-GM, SC-SM, SM, GM	*A-1, A-2	0	0	25-75	20-70	10-50	5-30	15-25	NP-10
	18-60	*Very gravelly sand, extremely cobbly sand, extremely gravelly sand, very gravelly loamy sand, extremely gravelly coarse sand	*GP-GM	*A-1	0	0-15	15-55	10-50	5-30	5-10	10-20	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
438:												
McConnel--------	0-1	*Extremely gravelly sandy loam	*GP-GC,	*A-1	0	0-30	10-30	10-25	5-15	5-10	15-25	NP-5
	1-12	*Sandy loam, loam	*SC-SM, SM, ML, CL-ML	*A-2, A-1, A-4	0	0	80-100	75-95	50-85	25-70	15-25	NP-10
	12-18	*Gravelly sandy loam, gravelly loamy sand, very gravelly sand, extremely gravelly sand, very gravelly sandy loam	*GC-GM, SC-SM, SM, GM	*A-1, A-2	0	0	25-75	20-70	10-50	5-30	15-25	NP-10
	18-60	*Very gravelly sand, extremely cobbly sand, extremely gravelly sand, very gravelly loamy sand, extremely gravelly coarse sand	*GP-GM	*A-1	0	0-15	15-55	10-50	5-30	5-10	10-20	NP-5
Davey-----------	0-3	*Fine sandy loam	*SC-SM, SM	*A-1, A-2	0	0	95-100	75-100	45-65	15-30	15-30	NP-10
	3-23	*Sandy loam, fine sandy loam	*SC-SM, SC, SM	*A-4, A-1	0	0	95-100	75-100	50-75	25-45	15-25	NP-10
	23-60	*Loamy fine sand, fine sand, loamy sand	*SM, SC-SM	*A-2	0	0	95-100	75-100	60-90	15-35	15-20	NP-5
439:												
McConnel--------	0-1	*Gravelly loamy sand	*SM, SC-SM	*A-1, A-2	0	0-10	60-80	55-75	30-55	15-25	0-25	NP-5
	1-12	*Sandy loam, loam	*SC-SM, SM, ML, CL-ML	*A-2, A-1, A-4	0	0	80-100	75-95	50-85	25-70	15-25	NP-10
	12-18	*Gravelly sandy loam, gravelly loamy sand, very gravelly sand, extremely gravelly sand, very gravelly sandy loam	*GC-GM, SC-SM, SM, GM	*A-1, A-2	0	0	25-75	20-70	10-50	5-30	15-25	NP-10
	18-60	*Very gravelly sand, extremely cobbly sand, extremely gravelly sand, very gravelly loamy sand, extremely gravelly coarse sand	*GP-GM	*A-1	0	0-15	15-55	10-50	5-30	5-10	10-20	NP-5
Poorjug, overblown------	0-13	*Gravelly loamy sand	*SC-SM, SP-SM, SC	*A-1, A-2	0-10	0-10	55-80	50-75	30-50	10-20	15-25	NP-10
	13-19	*Gravelly loam	*SC, GC	*A-6, A-2	0-10	0-10	55-80	50-75	40-65	30-45	30-35	10-15
	19-29	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
440:												
McConnel--------	0-1	*Very gravelly sandy loam	*GC-GM	*A-1	0	0-15	35-55	30-50	20-30	10-20	15-25	NP-5
	1-12	*Sandy loam, loam	*SC-SM, SM, ML, CL-ML	*A-2, A-1, A-4	0	0	80-100	75-95	50-85	25-70	15-25	NP-10
	12-18	*Gravelly sandy loam, gravelly loamy sand, very gravelly sand, extremely gravelly sand, very gravelly sandy loam	*GC-GM, SC-SM, SM, GM	*A-1, A-2	0	0	25-75	20-70	10-50	5-30	15-25	NP-10
	18-60	*Very gravelly sand, extremely cobbly sand, extremely gravelly sand, very gravelly loamy sand, extremely gravelly coarse sand	*GP-GM	*A-1	0	0-15	15-55	10-50	5-30	5-10	10-20	NP-5
Turpin----------	0-4	*Fine sandy loam	*SM, SC-SM	*A-4, A-2	0	0	90-100	85-100	55-80	30-50	15-25	NP-5
	4-12	*Gravelly sandy loam	*SM, SC-SM	*A-2, A-1	0	0	60-80	55-75	35-55	15-30	15-25	NP-5
	12-62	*Loamy fine sand, very fine sandy loam, loamy very fine sand, gravelly loamy sand	*SM, SC-SM	*A-4, A-1	0	0	60-100	55-100	40-80	15-50	15-25	NP-5
441:												
McNye-----------	0-7	*Cobbly loam	*SC-SM, SM	*A-2, A-1, A-4	0-15	15-30	70-85	65-80	35-65	20-45	15-25	NP-5
	7-16	*Very gravelly sandy loam	*GC-GM, GW-GM	*A-1	0-15	10-25	40-60	35-55	15-40	10-25	15-25	NP-5
	16-42	*Stratified extremely cobbly loamy sand to extremely gravelly loamy sand	*GW-GM, SM	*A-1	0-30	10-55	20-70	10-50	10-30	5-15	0-15	NP
	42-52	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
441:												
Wildhill--------	0-2	*Extremely cobbly sandy loam	*GC-GM, GW-GC, GC	*A-1, A-2	15-30	30-45	35-55	30-50	15-35	10-20	20-25	5-10
	2-9	*Very cobbly fine sandy loam	*GC, GC-GM	*A-2, A-1, A-4	0-10	25-40	55-75	50-70	35-60	20-40	25-30	5-10
	9-14	*Very cobbly sandy clay loam, extremely stony loam, very cobbly clay loam, extremely cobbly clay loam	*GC, CL	*A-2, A-7	0-45	25-50	45-80	40-70	30-65	20-60	30-45	10-25
	14-25	*Very cobbly sandy clay loam, very cobbly clay loam, extremely gravelly loam, extremely cobbly loam, extremely stony loam	*GC, GW-GC, CL	*A-2, A-6	10-30	15-45	30-75	25-70	15-60	5-55	30-40	10-20
	25-35	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
442:												
Meld------------	0-3	*Ashy loam	*CL, SC-SM	*A-4, A-6, A-2	0	0	80-95	75-90	55-85	35-65	20-35	5-15
	3-16	*Ashy clay loam	*CL, SC	*A-6, A-7	0	0	80-95	75-90	55-85	40-70	35-45	20-25
	16-33	*Very gravelly ashy clay loam, gravelly ashy clay loam	*GC	*A-2, A-7	0	0	40-70	35-60	20-55	15-45	35-45	20-25
	33-40	*Cemented material			---	---	---	---	---	---	---	---
Giranch---------	0-11	*Gravelly ashy loam	*SM, GC-GM, CL	*A-4, A-6, A-2	0-10	0-15	60-80	55-75	40-65	30-60	25-40	5-15
	11-23	*Very gravelly ashy sandy clay loam, very stony ashy clay loam	*GC	*A-7, A-2	0-40	0-25	30-75	25-70	25-60	20-50	40-50	20-30
	23-29	*Gravelly clay, very stony clay	*CH, GC	*A-7, A-2	0-45	0-15	50-75	45-65	35-60	30-60	50-65	30-40
	29-33	*Clay loam	*CL, CH	*A-6, A-7	0-10	0-10	85-100	80-100	70-100	55-80	35-50	20-30
	33-60	*Cemented material			---	---	---	---	---	---	---	---
443:												
Menbo, dry------	0-3	*Stony ashy loam	*SC, SC-SM	*A-4, A-1	15-40	0-10	80-95	75-90	40-75	25-50	20-30	5-10
	3-8	*Gravelly ashy loam	*GC, GC-GM	*A-4, A-2	0-10	0-15	65-80	60-75	40-65	30-50	20-30	5-10
	8-26	*Very cobbly clay loam, very gravelly clay loam, very cobbly clay	*GC, CH	*A-7, A-2	0-10	15-40	45-70	40-65	25-60	20-55	45-60	30-40
	26-36	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
444:												
Merlin----------	0-4	*Extremely stony loam	*GC, GP-GC	*A-2	30-45	25-40	30-50	25-45	15-40	10-30	30-40	10-15
	4-7	*Gravelly clay loam	*CH, CL	*A-7	0-10	0-10	75-85	70-80	65-80	50-65	45-55	20-30
	7-18	*Clay	*CH	*A-7	0-10	0-10	80-100	75-100	65-100	50-95	60-75	35-50
	18-28	*Bedrock			---	---	---	---	---	---	---	---
445:												
Mesman----------	0-2	*Fine sandy loam	*SC-SM	*A-2, A-4	0	0	85-100	80-100	55-85	25-40	20-30	5-10
	2-7	*Sandy loam	*SC-SM	*A-2, A-1	0	0	90-100	85-100	45-55	25-30	20-30	5-10
	7-26	*Sandy clay loam, sandy loam, loam, clay loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	60-100	30-80	30-40	15-25
	26-72	*Fine sandy loam, very fine sandy loam, sandy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	90-100	85-100	60-95	30-65	20-35	5-15
446:												
Mesman, slightly alkaline-------	0-2	*Fine sandy loam	*SC-SM	*A-2, A-4	0	0	85-100	80-100	55-85	25-40	20-30	5-10
	2-7	*Sandy loam	*SC-SM	*A-2, A-1	0	0	90-100	85-100	45-55	25-30	20-30	5-10
	7-26	*Sandy clay loam, sandy loam, loam, clay loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	60-100	30-80	30-40	15-25
	26-72	*Fine sandy loam, very fine sandy loam, sandy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	90-100	85-100	60-95	30-65	20-35	5-15
447:												
Mesman----------	0-2	*Gravelly sandy loam	*SC-SM	*A-1, A-2	0	0	60-80	55-75	30-50	15-30	20-30	5-10
	2-7	*Sandy loam	*SC-SM	*A-2, A-1	0	0	90-100	85-100	45-55	25-30	20-30	5-10
	7-26	*Sandy clay loam, sandy loam, loam, clay loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	60-100	30-80	30-40	15-25
	26-72	*Fine sandy loam, very fine sandy loam, sandy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	90-100	85-100	60-95	30-65	20-35	5-15

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
447:												
McConnel--------	0-1	*Very gravelly sandy loam	*GC-GM	*A-1	0	0-15	35-55	30-50	20-30	10-20	15-25	NP-5
	1-12	*Sandy loam, loam	*SC-SM, SM, ML, CL-ML	*A-2, A-1, A-4	0	0	80-100	75-95	50-85	25-70	15-25	NP-10
	12-18	*Gravelly sandy loam, gravelly loamy sand, very gravelly sand, extremely gravelly sand, very gravelly sandy loam	*GC-GM, SC-SM, SM, GM	*A-1, A-2	0	0	25-75	20-70	10-50	5-30	15-25	NP-10
	18-60	*Very gravelly sand, extremely cobbly sand, extremely gravelly sand, very gravelly loamy sand, extremely gravelly coarse sand	*GP-GM	*A-1	0	0-15	15-55	10-50	5-30	5-10	10-20	NP-5
Kewake----------	0-4	*Ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-20	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
448:												
Milcan----------	0-2	*Ashy loamy sand	*SC-SM, SM	*A-2	0	0	90-100	85-100	55-75	15-30	15-30	NP-10
	2-10	*Ashy sandy loam, gravelly ashy sandy loam, ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-2, A-1, A-4	0	0	75-100	60-100	35-75	10-50	15-30	NP-10
	10-34	*Ashy loamy fine sand, ashy sandy loam, ashy fine sandy loam, gravelly ashy loamy fine sand, gravelly ashy sandy loam	*SM, SC-SM	*A-4, A-1	0	0	75-100	60-100	45-95	15-50	10-25	NP-5
	34-44	*Cemented material			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
449:												
Milcan----------	0-2	*Ashy loam	*CL, CL-ML	*A-4	0	0	90-100	85-100	65-80	50-70	20-30	5-10
	2-10	*Ashy sandy loam, gravelly ashy sandy loam, ashy loamy sand, gravelly ashy loamy sand	*SC-SM, SP-SM	*A-2, A-1, A-4	0	0	75-100	60-100	35-75	10-50	15-30	NP-10
	10-34	*Ashy loamy fine sand, ashy sandy loam, ashy fine sandy loam, gravelly ashy loamy fine sand, gravelly ashy sandy loam	*SM, SC-SM	*A-4, A-1	0	0	75-100	60-100	45-95	15-50	10-25	NP-5
	34-44	*Cemented material			---	---	---	---	---	---	---	---
Jacksplace------	0-4	*Stony ashy sandy loam	*SC-SM, SM	*A-2, A-1	15-25	0-15	75-85	70-80	50-60	25-35	20-30	NP-5
	4-9	*Cobbly ashy sandy loam	*SC-SM, SM	*A-2, A-1	0-5	15-30	75-95	70-90	35-65	15-35	20-30	NP-5
	9-12	*Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	*SC, GW-GC	*A-2	15-45	15-45	45-80	40-75	15-50	10-30	25-30	10-15
	12-20	*Extremely stony ashy sandy clay loam, very stony ashy sandy loam, very stony ashy sandy clay loam	*GC, GP-GC, SC	*A-2	25-50	15-30	50-85	45-80	25-65	10-40	25-40	10-20
	20-26	*Extremely stony ashy sandy loam, very stony ashy sandy loam	*SC, GC	*A-2	30-55	15-30	55-90	50-85	30-55	15-30	25-30	10-15
	26-30	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
450:												
Millenium-------	0-3	*Ashy silt loam	*CL, ML	*A-4	0	0	100	100	90-100	70-90	20-35	NP-10
	3-9	*Ashy fine sandy loam	*SM, SC-SM, ML	*A-4, A-2	0	0	100	100	80-90	35-55	25-35	5-10
	9-22	*Ashy sandy clay loam, ashy clay loam	*CL, SC	*A-6	0	0	100	100	90-95	40-80	35-45	15-25
	22-30	*Ashy sandy loam	*SC, CL	*A-6, A-2	0	0	100	100	70-80	30-55	25-35	10-15
	30-47	*Stratified ashy loamy sand to ashy silty clay loam	*CL, SC-SM	*A-6, A-4	0	0	100	100	70-90	40-75	20-40	5-20
	47-65	*Ashy loamy fine sand, ashy loamy sand, ashy sandy loam	*SM, SC	*A-2, A-1, A-4	0	0	100	100	50-80	15-40	15-25	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
451:												
Millenium, basin floor----	0-3	*Ashy silt loam	*CL, ML	*A-4	0	0	100	100	90-100	70-90	20-35	NP-10
	3-9	*Ashy fine sandy loam	*SM, SC-SM, ML	*A-4, A-2	0	0	100	100	80-90	35-55	25-35	5-10
	9-22	*Ashy sandy clay loam, ashy clay loam	*CL, SC	*A-6	0	0	100	100	90-95	40-80	35-45	15-25
	22-30	*Ashy sandy loam	*SC, CL	*A-6, A-2	0	0	100	100	70-80	30-55	25-35	10-15
	30-47	*Stratified ashy loamy sand to ashy silty clay loam	*CL, SC-SM	*A-6, A-4	0	0	100	100	70-90	40-75	20-40	5-20
	47-65	*Ashy loamy fine sand, ashy loamy sand, ashy sandy loam	*SM, SC	*A-2, A-1, A-4	0	0	100	100	50-80	15-40	15-25	NP-10
452:												
Millenium-------	0-3	*Ashy fine sandy loam	*SC-SM, SM, ML	*A-4, A-2	0	0	100	100	80-90	35-55	20-30	NP-5
	3-9	*Ashy fine sandy loam	*SM, SC-SM, ML	*A-4, A-2	0	0	100	100	80-90	35-55	25-35	5-10
	9-22	*Ashy sandy clay loam, ashy clay loam	*CL, SC	*A-6	0	0	100	100	90-95	40-80	35-45	15-25
	22-30	*Ashy sandy loam	*SC, CL	*A-6, A-2	0	0	100	100	70-80	30-55	25-35	10-15
	30-47	*Stratified ashy loamy sand to ashy silty clay loam	*CL, SC-SM	*A-6, A-4	0	0	100	100	70-90	40-75	20-40	5-20
	47-65	*Ashy loamy fine sand, ashy loamy sand, ashy sandy loam	*SM, SC	*A-2, A-1, A-4	0	0	100	100	50-80	15-40	15-25	NP-10
Stauffer--------	0-8	*Ashy fine sandy loam	*CL-ML, CL, SM	*A-4	0	0	100	100	70-85	40-55	20-30	NP-10
	8-26	*Ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0	100	100	80-100	35-80	30-45	10-25
	26-45	*Ashy clay loam, ashy sandy loam, ashy very fine sandy loam	*SC, CL, SC-SM	*A-6, A-2	0	0	100	100	60-90	30-80	25-40	5-20
	45-66	*Ashy sandy loam, ashy clay loam, ashy loam, ashy fine sandy loam	*CL-ML, CL, SC-SM	*A-4, A-6, A-2	0	0	100	100	80-100	30-80	20-40	5-20

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
452:												
Raztack---------	0-4	*Ashy very fine sandy loam	*CL-ML, SM, CL	*A-4	0	0	100	95-100	75-95	45-65	15-25	NP-10
	4-14	*Ashy clay loam, ashy loam	*CL	*A-6, A-7, A-4	0	0	100	95-100	75-100	55-80	30-45	10-25
	14-33	*Clay	*CH	*A-7	0	0	100	100	90-100	75-95	50-70	30-40
	33-44	*Clay loam, sandy clay loam	*CL, CH, SC	*A-6, A-7	0	0	95-100	90-100	70-100	40-80	30-50	15-30
	44-50	*Cemented loamy sand, Cemented sandy loam	*SC-SM, SC, SM	*A-2, A-1, A-4	0	0	100	95-100	45-75	15-40	15-25	NP-10
	50-70	*Stratified loamy sand to clay loam	*SC-SM, SM, CL	*A-2, A-1, A-7	0	0	90-100	85-100	45-100	15-80	15-45	NP-25
455:												
Moonbeam--------	0-3	*Cobbly ashy fine sandy loam	*SC-SM, SC, SM	*A-4, A-2	0	15-40	70-85	65-80	50-65	35-45	15-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
456:												
Moonbeam--------	0-3	*Cobbly ashy loam	*CL, GC-GM	*A-4, A-6	0-10	15-30	70-95	65-90	60-75	40-60	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
457:												
Moonbeam--------	0-3	*Extremely cobbly ashy loam	*GC, GC-GM	*A-2, A-1	0-25	30-55	30-55	25-50	25-50	20-40	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
458:												
Moonbeam--------	0-3	*Very gravelly ashy loam	*GC, GC-GM	*A-2, A-1, A-6	0-10	10-25	40-60	35-55	25-50	20-40	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
459:												
Moonbeam--------	0-3	*Very cobbly ashy loam	*GC, GC-GM	*A-4, A-2, A-6	0-15	15-40	50-75	45-70	40-55	30-45	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
460:												
Moonbeam--------	0-3	*Very cobbly ashy loam	*GC, GC-GM	*A-4, A-2, A-6	0-15	15-40	50-75	45-70	40-55	30-45	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
461:												
Moonbeam--------	0-3	*Stony ashy sandy loam	*SC-SM, SM	*A-2, A-1	15-30	0-15	75-95	70-90	40-55	25-30	15-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Connleyhills----	0-4	*Gravelly ashy sandy loam	*SM, SC-SM	*A-1, A-2	0	0-10	70-100	55-75	35-45	20-30	10-15	NP-5
	4-11	*Ashy coarse sandy loam, gravelly ashy coarse sandy loam, ashy sandy loam, gravelly ashy sandy loam, cobbly ashy sandy loam, cobbly ashy coarse sandy loam	*SC-SM, SC	*A-2, A-1, A-4	0-10	10-15	80-100	65-90	35-75	15-45	20-30	5-10
	11-15	*Very cobbly ashy clay loam	*CL, SC, CH	*A-6, A-7, A-2	0-15	40-50	75-90	55-80	50-80	35-65	35-50	20-30
	15-22	*Very cobbly clay	*CH, SC	*A-7	10-15	25-50	80-100	60-85	60-85	40-80	50-70	30-45
	22-29	*Clay	*CH	*A-7	0	0-10	90-100	85-100	80-90	55-90	50-60	30-35
	29-32	*Very stony ashy clay loam, very cobbly ashy clay loam	*CL, CH, SC	*A-7, A-2	30-45	15-50	70-95	55-85	45-80	30-70	40-50	20-30
	32-42	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
462:												
Moonbeam--------	0-3	*Ashy very fine sandy loam	*CL-ML, ML	*A-4	0	0	95-100	90-100	85-95	55-65	15-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Goodtack--------	0-3	*Cobbly ashy very fine sandy loam	*SC, SM	*A-4, A-2	0	15-30	75-95	70-90	55-75	30-45	5-30	NP-10
	3-7	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	7-19	*Ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	55-90	30-55	30-40	10-20
	19-46	*Cemented material			---	---	---	---	---	---	---	---
	46-56	*Bedrock			---	---	---	---	---	---	---	---
463:												
Moonbeam--------	0-3	*Cobbly ashy fine sandy loam	*SC-SM, SC, SM	*A-4, A-2	0	15-40	70-85	65-80	50-65	35-45	15-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Goodtack--------	0-3	*Gravelly ashy coarse sandy loam	*SC-SM, GC-GM	*A-2, A-1	0	0	55-80	50-75	30-50	20-30	20-30	5-10
	3-7	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	7-19	*Ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	55-90	30-55	30-40	10-20
	19-46	*Cemented material			---	---	---	---	---	---	---	---
	46-56	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
464:												
Moonbeam--------	0-3	*Stony ashy fine sandy loam	*SC-SM, SM	*A-4, A-2	15-30	0-15	70-95	65-90	50-75	35-45	25-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Hayespring------	0-3	*Very stony ashy fine sandy loam	*SM, GM, GC-GM	*A-2, A-1, A-4	15-30	15-30	50-75	45-70	25-60	15-40	25-35	5-10
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---
465:												
Moonbeam, moist	0-3	*Cobbly ashy very fine sandy loam	*SC-SM, GM	*A-4	0	25-45	70-95	65-90	55-75	40-50	15-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
465:												
Hayespring, moist	0-3	*Stony ashy fine sandy loam	*SM, SC-SM	*A-1, A-2	10-30	0-15	70-95	65-90	35-55	15-30	25-35	5-10
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---
466:												
Moonbeam	0-3	*Gravelly ashy loam	*GC, CL, GC-GM	*A-4, A-6	0	0	60-80	55-75	50-65	40-55	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Meld	0-3	*Gravelly ashy very fine sandy loam	*GC-GM, GM, SC	*A-4, A-2	0	0-10	60-80	55-75	50-70	30-45	15-30	NP-10
	3-16	*Ashy clay loam	*CL, SC	*A-6, A-7	0	0	80-95	75-90	55-85	40-70	35-45	20-25
	16-33	*Very gravelly ashy clay loam, gravelly ashy clay loam	*GC	*A-2, A-7	0	0	40-70	35-60	20-55	15-45	35-45	20-25
	33-40	*Cemented material			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
467:												
Moonbeam--------	0-3	*Very stony ashy loam	*SC, GC, GC-GM	*A-4, A-2	25-40	0-15	50-75	45-70	40-55	30-45	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Senra-----------	0-3	*Cobbly ashy loam	*CL, GC	*A-6, A-4	0	15-30	70-95	65-90	55-75	45-60	25-40	10-15
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
468:												
Moonbeam, gravelly ashy fine sandy loam surface---	0-3	*Gravelly ashy fine sandy loam	*GC-GM, GM, SC	*A-4, A-2	0	0-10	60-80	55-75	45-60	30-40	15-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Senra-----------	0-3	*Ashy fine sandy loam	*SC, SC-SM	*A-4, A-2	0	0-10	80-95	75-90	55-75	30-50	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
469:												
Moonbeam--------	0-3	*Ashy fine sandy loam	*CL-ML, ML	*A-4	0	0	95-100	90-100	75-85	50-60	15-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Senra-----------	0-3	*Gravelly ashy fine sandy loam	*SC, SC-SM	*A-4, A-2	0	0-10	65-80	65-75	45-60	30-40	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
Hayespring------	0-3	*Stony ashy very fine sandy loam	*SM, SC-SM	*A-4, A-2	10-30	0-15	70-95	65-90	50-75	30-50	25-35	5-10
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---
470:												
Morehouse-------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
471:												
Morehouse-------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15
472:												
Morehouse-------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15
473:												
Morehouse-------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-60	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
474:												
Morehouse, ashy fine sand surface--------	0-5	*Ashy fine sand	*SM, SC-SM	*A-2	0	0	90-100	85-100	65-80	30-35	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
474:												
Morehouse, ashy sand surface---	0-5	*Ashy sand	*SM, SC-SM	*A-2	0	0	80-100	75-100	55-70	25-30	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15
475:												
Morehouse-------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15
Playas----------	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
476:												
Morfitt---------	0-3	*Loam	*CL	*A-6, A-4	0	0	95-100	90-100	75-95	55-75	30-35	10-20
	3-7	*Loam	*CL	*A-6, A-4	0	0	95-100	90-100	75-95	55-75	30-35	10-20
	7-25	*Clay loam, loam, silty clay loam	*CL	*A-6, A-7	0	0	95-100	90-100	75-100	55-80	35-45	15-25
	25-60	*Clay loam, loam	*CL	*A-6, A-7	0	0	95-100	90-100	75-100	55-80	35-45	15-25
477:												
Murlose---------	0-11	*Cobbly ashy loam	*CL, SC-SM	*A-6, A-2	0	25-40	70-95	65-80	50-65	35-60	20-35	5-20
	11-19	*Cobbly ashy sandy clay loam, cobbly ashy clay loam	*SC, CL	*A-6, A-2	0	20-35	75-90	70-90	55-85	25-70	30-45	10-25
	19-22	*Cemented material			---	---	---	---	---	---	---	---
	22-32	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
478:												
Murlose----------	0-3	*Gravelly ashy coarse sandy loam	*SC-SM, GC-GM	*A-1, A-2	0	0-25	55-80	50-75	30-55	15-30	20-30	5-10
	3-11	*Cobbly ashy sandy loam	*SC, SC-SM, CL	*A-4, A-6, A-2	0	15-30	65-90	60-90	55-85	25-70	20-35	5-15
	11-19	*Cobbly ashy sandy clay loam, cobbly ashy clay loam	*SC, CL	*A-6, A-2	0	20-35	75-90	70-90	55-85	25-70	30-45	10-25
	19-22	*Cemented material			---	---	---	---	---	---	---	---
	22-32	*Bedrock			---	---	---	---	---	---	---	---
479:												
Ninemile---------	0-2	*Very cobbly loam	*GC, GC-GM, SC	*A-4, A-6, A-1	0-10	20-40	55-80	40-70	30-55	25-45	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---
480:												
Ninemile, low precipitation--	0-2	*Very cobbly loam	*GC, GC-GM, SC	*A-4, A-6, A-1	0-10	20-40	55-80	40-70	30-55	25-45	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---
481:												
Ninemile---------	0-2	*Very cobbly loam	*GC, GC-GM, SC	*A-4, A-6, A-1	0-10	20-40	55-80	40-70	30-55	25-45	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---
Arcia------------	0-4	*Gravelly loam	*SC, CL	*A-6, A-2	0-10	0-10	55-90	50-85	40-75	30-60	30-40	10-20
	4-12	*Loam	*CL, SC	*A-6, A-4	0	0-10	75-95	70-90	60-85	40-70	30-40	10-20
	12-32	*Clay, clay loam, gravelly clay loam	*CH, GC	*A-7	0	0-10	70-95	65-90	55-90	40-85	45-60	25-35
	32-42	*Bedrock			---	---	---	---	---	---	---	---
482:												
Ninemile---------	0-2	*Gravelly loam	*SC, GC-GM, GC	*A-4, A-6, A-2	0-10	0-15	55-80	50-75	40-65	30-50	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
482:												
Carvix----------	0-6	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	85-100	80-100	70-100	25-35	5-15
	6-19	*Silt loam, loam	*CL, CL-ML	*A-4, A-6	0	0	100	85-100	80-100	55-100	25-35	5-15
	19-60	*Loam, clay loam	*ML, CL, SM	*A-4, A-6	0	0	100	85-100	75-100	45-85	30-40	5-15
483:												
Ninemile--------	0-2	*Gravelly loam	*SC, GC-GM, GC	*A-4, A-6, A-2	0-10	0-15	55-80	50-75	40-65	30-50	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---
Edemaps---------	0-3	*Cobbly clay loam	*CL	*A-7, A-6	0	15-30	80-100	70-90	70-85	50-70	40-50	20-25
	3-10	*Sandy loam, loam, clay loam	*SC, CL	*A-6, A-2, A-7	0	0-15	80-100	75-100	50-90	15-80	30-45	10-20
	10-19	*Gravelly clay loam, clay loam	*CH, CL	*A-7	0	0-15	65-100	60-100	60-90	50-80	45-55	25-30
	19-24	*Gravelly clay loam, clay loam	*CH, CL	*A-7	0	0-15	65-100	60-100	60-90	50-80	45-55	25-30
	24-26	*Cemented material			---	---	---	---	---	---	---	---
	26-30	*Bedrock			---	---	---	---	---	---	---	---
484:												
Ninemile--------	0-2	*Very cobbly loam	*GC, GC-GM, SC	*A-4, A-6, A-1	0-10	20-40	55-80	40-70	30-55	25-45	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---
Reluctan--------	0-2	*Cobbly loam	*CL, SC	*A-6, A-4	0	0-20	80-100	70-100	60-95	40-75	25-40	10-20
	2-9	*Sandy loam, loam, gravelly loam	*CL, GC	*A-4, A-6, A-2	0	0-10	55-95	50-90	45-85	35-65	25-40	10-20
	9-26	*Sandy clay loam, gravelly loam, gravelly sandy clay loam	*CL, CH, SC	*A-7, A-6	0-5	0-20	80-100	70-95	55-90	40-70	35-50	15-25
	26-36	*Bedrock			---	---	---	---	---	---	---	---
485:												
Ninemile--------	0-2	*Very cobbly loam	*GC, GC-GM, SC	*A-4, A-6, A-1	0-10	20-40	55-80	40-70	30-55	25-45	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
485:												
Reluctan	0-2	*Fine sandy loam	*CL-ML, SM, CL	*A-4	0	0	95-100	90-100	65-85	45-55	20-30	NP-10
	2-9	*Sandy loam, loam, gravelly loam	*CL, GC	*A-4, A-6, A-2	0	0-10	55-95	50-90	45-85	35-65	25-40	10-20
	9-26	*Sandy clay loam, gravelly loam, gravelly sandy clay loam	*CL, CH, SC	*A-7, A-6	0-5	0-20	80-100	70-95	55-90	40-70	35-50	15-25
	26-36	*Bedrock			---	---	---	---	---	---	---	---
Rubble land	0-60	*Fragmental material			---	---	---	---	---	---	---	---
486:												
Ninemile, north	0-2	*Very cobbly loam	*GC, GC-GM, SC	*A-4, A-6, A-1	0-10	20-40	55-80	40-70	30-55	25-45	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0-60	*Bedrock			---	---	---	---	---	---	---	---
Felcher, south	0-4	*Very cobbly sandy loam	*SC-SM, SM, SC	*A-1, A-2	10-15	25-40	65-90	50-85	30-55	15-30	15-30	NP-10
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
487:												
Ninemile	0-2	*Very cobbly loam	*GC, GC-GM, SC	*A-4, A-6, A-1	0-10	20-40	55-80	40-70	30-55	25-45	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
487:												
Westbutte-------	0-3	*Extremely stony loam	*GM, GC, GP-GC	*A-2	30-55	10-45	25-50	20-45	10-30	5-25	30-40	10-15
	3-11	*Very cobbly loam, extremely cobbly clay loam, very cobbly clay loam, extremely cobbly loam, very stony loam	*GC, SC	*A-6, A-7, A-2	0-50	30-55	30-85	25-80	25-60	20-50	30-45	10-20
	11-21	*Extremely cobbly clay loam, very cobbly loam, very stony loam, very cobbly clay loam, extremely cobbly loam	*GC	*A-6, A-2, A-7	0-50	30-55	30-65	25-60	25-60	20-50	30-45	10-20
	21-31	*Bedrock			---	---	---	---	---	---	---	---
488:												
Ninemile--------	0-2	*Very cobbly clay loam	*GC, SC	*A-7, A-2	0-10	25-40	60-90	40-70	30-60	25-50	40-55	20-30
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---
Westbutte-------	0-3	*Extremely stony loam	*GM, GC, GP-GC	*A-2	30-55	10-45	25-50	20-45	10-30	5-25	30-40	10-15
	3-11	*Very cobbly loam, extremely cobbly clay loam, very cobbly clay loam, extremely cobbly loam, very stony loam	*GC, SC	*A-6, A-7, A-2	0-50	30-55	30-85	25-80	25-60	20-50	30-45	10-20
	11-21	*Extremely cobbly clay loam, very cobbly loam, very stony loam, very cobbly clay loam, extremely cobbly loam	*GC	*A-6, A-2, A-7	0-50	30-55	30-65	25-60	25-60	20-50	30-45	10-20
	21-31	*Bedrock			---	---	---	---	---	---	---	---
Ninemile, extremely stony surface--------	0-2	*Extremely stony silt loam	*GM, GC-GM, CL	*A-2, A-6, A-1	40-55	25-55	45-75	20-55	20-55	20-55	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
489:												
Noidee----------	0-2	*Very stony fine sandy loam	*SC-SM, SC, GM	*A-2, A-1	30-45	15-45	50-80	45-75	35-50	20-35	15-25	NP-10
	2-5	*Clay, sandy clay, cobbly clay, clay loam	*CH, CL	*A-7	0-15	0-30	80-100	75-100	65-100	50-95	45-55	25-35
	5-16	*Sandy clay loam, clay loam, clay, cobbly clay loam	*CL, CH, SC	*A-6, A-7	0-10	0-30	80-100	75-100	55-100	40-90	35-55	20-35
	16-26	*Bedrock			---	---	---	---	---	---	---	---
490:												
Norcross, extremely cobbly ashy loam surface---	0-3	*Extremely cobbly ashy loam	*GP-GC, GM	*A-2, A-1	0-25	35-50	25-45	20-40	15-40	10-30	25-45	5-15
	3-6	*Cobbly ashy loam, very cobbly ashy clay loam	*CL, GC	*A-7, A-6, A-2	0-15	15-30	50-95	45-90	45-90	35-70	35-45	15-20
	6-19	*Clay, clay loam	*CH, CL	*A-7	0	0-10	90-100	85-100	70-100	70-95	45-70	30-50
	19-21	*Cemented material			---	---	---	---	---	---	---	---
	21-31	*Bedrock			---	---	---	---	---	---	---	---
Norcross, cobbly ashy fine sandy loam surface---	0-3	*Cobbly ashy fine sandy loam	*SC-SM, SM	*A-4, A-2	0-10	15-30	70-90	65-90	55-65	35-45	25-35	5-10
	3-6	*Cobbly ashy loam, very cobbly ashy clay loam	*CL, GC	*A-7, A-6, A-2	0-15	15-30	50-95	45-90	45-90	35-70	35-45	15-20
	6-19	*Clay, clay loam	*CH, CL	*A-7	0	0-10	90-100	85-100	70-100	70-95	45-70	30-50
	19-21	*Cemented material			---	---	---	---	---	---	---	---
	21-31	*Bedrock			---	---	---	---	---	---	---	---
491:												
Norcross--------	0-3	*Extremely cobbly ashy loam	*GP-GC, GM	*A-2, A-1	0-25	35-50	25-45	20-40	15-40	10-30	25-45	5-15
	3-6	*Cobbly ashy loam, very cobbly ashy clay loam	*CL, GC	*A-7, A-6, A-2	0-15	15-30	50-95	45-90	45-90	35-70	35-45	15-20
	6-19	*Clay, clay loam	*CH, CL	*A-7	0	0-10	90-100	85-100	70-100	70-95	45-70	30-50
	19-21	*Cemented material			---	---	---	---	---	---	---	---
	21-31	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
492:												
Norcross--------	0-3	*Gravelly ashy loam	*SM, GC-GM, GM	*A-4, A-2	0-10	0-10	55-80	50-75	50-65	35-50	25-45	5-15
	3-6	*Cobbly ashy loam, very cobbly ashy clay loam	*CL, GC	*A-7, A-6, A-2	0-15	15-30	50-95	45-90	45-90	35-70	35-45	15-20
	6-19	*Clay, clay loam	*CH, CL	*A-7	0	0-10	90-100	85-100	70-100	70-95	45-70	30-50
	19-21	*Cemented material			---	---	---	---	---	---	---	---
	21-31	*Bedrock			---	---	---	---	---	---	---	---
493:												
Oatmanflat------	0-3	*Ashy very fine sandy loam	*SC-SM, CL-ML, SM	*A-4, A-2	0	0	90-100	85-100	60-85	30-55	10-15	NP-5
	3-12	*Ashy sandy clay loam, ashy sandy loam	*SC, SC-SM	*A-4, A-2	0	0	90-100	85-100	45-75	30-45	20-35	5-15
	12-28	*Ashy coarse sandy loam, ashy sandy loam	*SC, SC-SM	*A-2	0	0	90-100	85-100	45-55	25-30	20-30	5-10
	28-44	*Ashy clay loam, ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2, A-7	0	0	90-100	85-100	55-80	30-65	30-45	10-25
	44-53	*Gravelly ashy sandy clay loam, ashy clay loam, ashy fine sandy loam, ashy loam	*CL	*A-6, A-7	0	0-10	65-100	60-100	55-90	50-75	30-45	10-25
	53-64	*Cemented material			---	---	---	---	---	---	---	---
494:												
Oatmanflat------	0-3	*Ashy very fine sandy loam	*SC-SM, CL-ML, SM	*A-4, A-2	0	0	90-100	85-100	60-85	30-55	10-15	NP-5
	3-12	*Ashy sandy clay loam, ashy sandy loam	*SC, SC-SM	*A-4, A-2	0	0	90-100	85-100	45-75	30-45	20-35	5-15
	12-28	*Ashy coarse sandy loam, ashy sandy loam	*SC, SC-SM	*A-2	0	0	90-100	85-100	45-55	25-30	20-30	5-10
	28-44	*Ashy clay loam, ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2, A-7	0	0	90-100	85-100	55-80	30-65	30-45	10-25
	44-53	*Gravelly ashy sandy clay loam, ashy clay loam, ashy fine sandy loam, ashy loam	*CL	*A-6, A-7	0	0-10	65-100	60-100	55-90	50-75	30-45	10-25
	53-64	*Cemented material			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
494:												
Borobey	0-4	*Ashy very fine sandy loam	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	90-100	85-100	45-70	10-25	10-15	NP-5
	4-12	*Ashy loamy sand, gravelly ashy sandy loam, gravelly ashy loamy sand, ashy sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	30-95	10-75	10-15	NP-5
	12-50	*Ashy loamy fine sand, gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	45-95	10-55	10-15	NP-5
	50-68	*Ashy loamy sand, very gravelly ashy loamy coarse sand, ashy gravelly loamy sand, ashy sandy loam, very gravelly ashy sandy loam	*SM, CL-ML, SW-SM, ML	*A-2, A-1, A-4	0	0	60-100	35-100	10-95	5-55	10-15	NP-5
495:												
Old Camp	0-5	*Very cobbly loam	*GC, GC-GM, SC	*A-2, A-6, A-1	0-15	25-45	45-80	40-70	35-65	25-45	25-35	5-15
	5-11	*Very cobbly sandy clay loam, extremely cobbly sandy clay loam, extremely cobbly clay loam	*GC, CL	*A-2, A-7	0-30	30-75	30-80	25-75	25-75	15-60	35-45	15-25
	11-15	*Extremely cobbly sandy clay loam, very cobbly sandy clay loam, extremely cobbly clay loam	*GC, CL	*A-2, A-7	0-30	30-75	30-80	25-75	25-75	15-60	30-45	15-25
	15-25	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
496:												
Old Camp, south	0-5	*Very cobbly loam	*GC, GC-GM, SC	*A-2, A-6, A-1	0-15	25-45	45-80	40-70	35-65	25-45	25-35	5-15
	5-11	*Very cobbly sandy clay loam, extremely cobbly sandy clay loam, extremely cobbly clay loam	*GC, CL	*A-2, A-7	0-30	30-75	30-80	25-75	25-75	15-60	35-45	15-25
	11-15	*Extremely cobbly sandy clay loam, very cobbly sandy clay loam, extremely cobbly clay loam	*GC, CL	*A-2, A-7	0-30	30-75	30-80	25-75	25-75	15-60	30-45	15-25
	15-25	*Bedrock			---	---	---	---	---	---	---	---
497:												
Old Camp--------	0-5	*Very cobbly loam	*GC, GC-GM, SC	*A-2, A-6, A-1	0-15	25-45	45-80	40-70	35-65	25-45	25-35	5-15
	5-11	*Very cobbly sandy clay loam, extremely cobbly sandy clay loam, extremely cobbly clay loam	*GC, CL	*A-2, A-7	0-30	30-75	30-80	25-75	25-75	15-60	35-45	15-25
	11-15	*Extremely cobbly sandy clay loam, very cobbly sandy clay loam, extremely cobbly clay loam	*GC, CL	*A-2, A-7	0-30	30-75	30-80	25-75	25-75	15-60	30-45	15-25
	15-25	*Bedrock			---	---	---	---	---	---	---	---
Felcher, north--	0-4	*Very cobbly sandy loam	*SC-SM, SM, SC	*A-1, A-2	10-15	25-40	65-90	50-85	30-55	15-30	15-30	NP-10
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
498:												
Osoll-----------	0-4	*Very cobbly fine sandy loam	*GC, GC-GM, SC	*A-2, A-1	0-15	25-45	40-80	35-75	35-60	15-35	20-30	5-10
	4-8	*Very cobbly coarse sandy loam, very gravelly sandy loam	*GC, SC	*A-2, A-1	0-15	25-45	40-80	35-75	15-50	10-30	20-30	5-10
	8-12	*Very cobbly coarse sandy loam, very gravelly sandy loam	*GC, SC	*A-2, A-1	0-15	25-45	40-80	35-75	15-50	10-30	20-30	5-10
	12-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
Panlee----------	0-8	*Gravelly very fine sandy loam	*SC-SM, SC, GC-GM	*A-2, A-1	0	0-10	55-80	50-75	40-65	25-45	20-30	5-10
	8-22	*Very cobbly fine sandy loam	*SC-SM, GC, GC-GM	*A-1, A-4	0-10	25-50	55-70	50-65	40-60	15-40	20-30	5-10
	22-54	*Very cobbly fine sandy loam, very cobbly sandy loam, very gravelly sandy loam	*GC-GM, GC, GW-GM	*A-1, A-4	0-10	25-50	35-75	30-70	20-60	10-40	20-30	5-10
	54-61	*Cemented material			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
499:												
Overallflat-----	0-4	*Ashy very fine sandy loam	*CL, CL-ML	*A-4	0	0	100	100	85-95	50-65	25-30	5-10
	4-7	*Ashy silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-100	30-40	10-20
	7-14	*Ashy silty clay loam, ashy clay loam, ashy clay	*CH, CL	*A-7, A-6	0	0	100	100	90-100	70-95	40-55	20-30
	14-26	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0	100	100	80-90	35-55	30-40	15-25
	26-60	*Ashy loamy fine sand, ashy fine sandy loam, very gravelly ashy sand	*SC-SM, CL-ML, GP	*A-4, A-1	0	0	35-100	30-100	15-90	0-55	15-20	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
500:												
Overallflat, pluvial lake---	0-4	*Ashy very fine sandy loam	*CL, CL-ML	*A-4	0	0	100	100	85-95	50-65	25-30	5-10
	4-7	*Ashy silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-100	30-40	10-20
	7-14	*Ashy silty clay loam, ashy clay loam, ashy clay	*CH, CL	*A-7, A-6	0	0	100	100	90-100	70-95	40-55	20-30
	14-26	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0	100	100	80-90	35-55	30-40	15-25
	26-60	*Ashy loamy fine sand, ashy fine sandy loam, very gravelly ashy sand	*SC-SM, CL-ML, GP	*A-4, A-1	0	0	35-100	30-100	15-90	0-55	15-20	NP-5
501:												
Overallflat-----	0-4	*Ashy very fine sandy loam	*CL, CL-ML	*A-4	0	0	100	100	85-95	50-65	25-30	5-10
	4-7	*Ashy silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-100	30-40	10-20
	7-14	*Ashy silty clay loam, ashy clay loam, ashy clay	*CH, CL	*A-7, A-6	0	0	100	100	90-100	70-95	40-55	20-30
	14-26	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0	100	100	80-90	35-55	30-40	15-25
	26-60	*Ashy loamy fine sand, ashy fine sandy loam, very gravelly ashy sand	*SC-SM, CL-ML, GP	*A-4, A-1	0	0	35-100	30-100	15-90	0-55	15-20	NP-5
Morehouse-------	0-5	*Ashy sandy loam	*SC-SM, SM	*A-2, A-4	0	0	90-100	85-100	55-70	30-40	15-25	NP-10
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15
502:												
Overallflat-----	0-4	*Ashy fine sandy loam	*CL, SC-SM	*A-4	0	0	100	100	70-85	40-55	25-30	5-10
	4-7	*Ashy silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-100	30-40	10-20
	7-14	*Ashy silty clay loam, ashy clay loam, ashy clay	*CH, CL	*A-7, A-6	0	0	100	100	90-100	70-95	40-55	20-30
	14-26	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0	100	100	80-90	35-55	30-40	15-25
	26-60	*Ashy loamy fine sand, ashy fine sandy loam, very gravelly ashy sand	*SC-SM, CL-ML, GP	*A-4, A-1	0	0	35-100	30-100	15-90	0-55	15-20	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
502:												
Silverash-------	0-2	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	85-95	60-75	20-34	5-15
	2-8	*Ashy loam, ashy silt loam	*CL, CL-ML	*A-4	0	0	100	100	85-95	60-90	20-30	5-10
	8-21	*Clay, clay loam, silty clay loam	*CH, SC	*A-7	0	0	100	100	80-95	40-70	45-60	25-40
	21-62	*Sandy clay loam, very fine sandy loam, clay loam	*CL, SC	*A-6, A-4, A-7	0	0	100	100	80-95	40-70	30-45	10-25
503:												
Overallflat, hummocky-------	0-4	*Ashy very fine sandy loam	*CL, CL-ML	*A-4	0	0	100	100	85-95	50-65	25-30	5-10
	4-7	*Ashy silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-100	30-40	10-20
	7-14	*Ashy silty clay loam, ashy clay loam, ashy clay	*CH, CL	*A-7, A-6	0	0	100	100	90-100	70-95	40-55	20-30
	14-26	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0	100	100	80-90	35-55	30-40	15-25
	26-60	*Ashy loamy fine sand, ashy fine sandy loam, very gravelly ashy sand	*SC-SM, CL-ML, GP	*A-4, A-1	0	0	35-100	30-100	15-90	0-55	15-20	NP-5
Silverash-------	0-2	*Ashy silt loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	2-8	*Ashy loam, ashy silt loam	*CL, CL-ML	*A-4	0	0	100	100	85-95	60-90	20-30	5-10
	8-21	*Clay, clay loam, silty clay loam	*CH, SC	*A-7	0	0	100	100	80-95	40-70	45-60	25-40
	21-62	*Sandy clay loam, very fine sandy loam, clay loam	*CL, SC	*A-6, A-4, A-7	0	0	100	100	80-95	40-70	30-45	10-25
504:												
Ozamis, saline--	0-10	*Silty clay	*CH	*A-7	0	0	100	100	95-100	90-95	55-65	30-35
	10-34	*Silt loam, silty clay loam, clay loam, loam, silty clay	*CL, CH	*A-6, A-7	0	0	90-100	85-100	80-95	60-95	35-65	15-35
	34-36	*Ashy coarse sand	*SP-SM, SC-SM	*A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-15	NP-5
	36-60	*Very fine sandy loam, silt loam, sandy loam, silty clay loam, loam	*CL, SC	*A-4, A-7	0	0	100	100	60-95	40-95	25-45	10-25

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	 AASHTO	Fragments >10 inches	 3-10 inches	Percentage passing sieve number-- 4	 10	 40	 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
505:												
Ozamis----------	0-10	*Loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-75	25-40	5-20
	10-34	*Silt loam, silty clay loam, clay loam, loam, silty clay	*CL, CH	*A-6, A-7	0	0	90-100	85-100	80-95	60-95	35-65	15-35
	34-36	*Ashy coarse sand	*SP-SM, SC-SM	*A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-15	NP-5
	36-60	*Very fine sandy loam, silt loam, sandy loam, silty clay loam, loam	*CL, SC	*A-4, A-7	0	0	100	100	60-95	40-95	25-45	10-25
Reese-----------	0-4	*Very fine sandy loam	*CL, ML	*A-4	0	0	100	100	85-95	50-65	20-35	NP-10
	4-10	*Loam	*ML, CL-ML, CL	*A-4, A-6	0	0	100	100	85-95	60-75	20-40	5-15
	10-33	*Loam, clay loam	*CL	*A-6, A-4	0	0	100	100	85-100	60-80	30-40	10-20
	33-44	*Loam, coarse sandy loam, sandy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	60-90	35-65	20-35	5-15
	44-60	*Loam, sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-75	20-35	5-15
506:												
Pait------------	0-3	*Very cobbly loam	*GC, SC	*A-4, A-6, A-2	0-30	25-45	45-85	40-80	25-65	20-50	25-40	10-20
	3-16	*Very gravelly sandy loam, very cobbly loam	*SC, GC, GP-GC	*A-2, A-6	0-30	15-45	30-85	25-80	15-65	10-50	25-40	10-20
	16-42	*Extremely stony sandy loam, very gravelly clay loam, extremely gravelly loam	*GW-GC, GP-GC, GC	*A-2, A-6	0-50	15-40	20-65	15-60	10-55	5-50	25-40	10-20
	42-55	*Extremely stony loamy sand, very gravelly sandy loam, extremely cobbly loamy sand	*GP-GM, GC, GW	*A-1, A-2	10-45	10-45	30-70	25-65	10-45	0-25	0-30	NP-15
	55-62	*Very stony sandy loam, very gravelly loamy sand, very cobbly sandy loam	*GC-GM, SC, GP-GM	*A-1, A-2	10-40	10-40	35-75	30-70	15-50	5-30	15-25	NP-10
507:												
Paulina---------	0-3	*Ashy silty clay loam	*MH, CL	*A-7, A-6	0	0	100	100	95-100	85-95	40-60	20-25
	3-12	*Ashy silty clay loam	*MH, CL	*A-7, A-6	0	0	100	100	95-100	85-95	40-60	20-25
	12-60	*Ashy loam, ashy very fine sandy loam, ashy silty clay loam	*CL, CL-ML	*A-6, A-7, A-4	0	0	95-100	90-100	75-100	55-95	25-45	5-25

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
508: Paulina, very gravelly substratum-----	0-3	*Ashy silty clay loam	*MH, CL	*A-7, A-6	0	0	100	100	95-100	85-95	40-60	20-25
	3-53	*Ashy silty clay loam	*MH	*A-7	0	0	100	100	95-100	85-95	50-60	20-25
	53-60	*Very gravelly ashy very fine sandy loam, very gravelly ashy loam	*GC, GW-GC	*A-2, A-6, A-1	0	0-25	35-55	30-50	25-45	10-40	20-40	5-20
509: Paulina---------	0-1	*Moderately decomposed plant material	*PT	*A-8	0	0	100	100	85-100	80-100	---	---
	1-3	*Ashy mucky silt loam	*CL, MH	*A-6, A-7	0	0	100	100	90-100	70-100	20-50	10-15
	3-12	*Ashy silty clay loam	*MH, CL	*A-7, A-6	0	0	100	100	95-100	85-95	40-60	20-25
	12-60	*Ashy loam, ashy very fine sandy loam, ashy silty clay loam	*CL, CL-ML	*A-6, A-7, A-4	0	0	95-100	90-100	75-100	55-95	25-45	5-25
Chinarise-------	0-5	*Ashy silt loam	*ML, CL-ML	*A-4, A-7	0	0	100	100	95-100	75-95	25-45	5-15
	5-18	*Ashy silt loam, ashy loam, ashy silty clay loam	*CL, CL-ML	*A-4, A-7	0	0	100	100	100	65-95	25-45	5-20
	18-50	*Ashy fine sandy loam, ashy loam, ashy silt loam, ashy sandy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	80-100	35-95	25-40	5-20
	50-60	*Ashy fine sandy loam, ashy loamy fine sand, ashy sandy loam, ashy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	90-100	30-85	20-40	5-15
511: Pernty----------	0-3	*Gravelly silt loam	*ML, CL, GC-GM	*A-4, A-6	0	0-15	60-80	55-75	50-70	40-65	25-40	5-20
	3-12	*Very cobbly clay loam, very cobbly loam	*GC	*A-7, A-2	0-15	30-50	55-75	50-70	45-60	35-50	40-50	20-25
	12-22	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
512:												
Pernty----------	0-2	*Extremely stony ashy fine sandy loam	*GC, GP-GC, GM	*A-2, A-1	25-55	10-30	25-50	20-45	15-40	5-25	25-35	5-10
	2-6	*Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	*GC, GM, GW-GC	*A-2, A-1	20-50	10-35	35-65	30-60	15-40	10-25	25-35	5-10
	6-18	*Very cobbly ashy sandy clay loam, extremely cobbly ashy sandy clay loam	*SC, GC	*A-6, A-7, A-2	0-25	30-55	45-75	40-70	40-65	25-50	30-45	15-25
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Chesebro--------	0-4	*Very cobbly ashy loam	*GC, CL, GC-GM	*A-2, A-6, A-1	0-10	25-30	45-75	35-65	30-60	25-55	25-40	5-15
	4-24	*Very stony ashy loam, very cobbly ashy loam	*GC, GC-GM, CL	*A-2, A-1, A-6	0-30	10-65	35-85	30-80	25-75	20-60	25-40	5-15
	24-60	*Very gravelly ashy loam, very cobbly ashy clay loam, very gravelly ashy sandy clay loam, very cobbly ashy loam	*GC, CL	*A-2, A-7	0-15	10-60	35-85	30-80	25-80	20-65	30-45	15-25
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
513:												
Pernty----------	0-3	*Very stony sandy loam	*GC-GM, SC	*A-1, A-2	25-40	0-15	40-70	35-65	20-35	15-20	20-30	5-10
	3-12	*Very cobbly clay loam, very cobbly loam	*GC	*A-7, A-2	0-15	30-50	55-75	50-70	45-60	35-50	40-50	20-25
	12-22	*Bedrock			---	---	---	---	---	---	---	---
Cleavage--------	0-7	*Very cobbly loam	*CL, GC	*A-4, A-2, A-6	0-10	15-45	60-80	55-70	45-65	35-60	25-35	10-15
	7-11	*Very cobbly clay loam, very cobbly loam, very gravelly loam, very gravelly clay loam	*CL, GC	*A-6, A-2	0-10	25-50	55-70	55-65	40-60	30-50	30-40	15-25
	11-21	*Bedrock			---	---	---	---	---	---	---	---
514:												
Pernty, south---	0-3	*Extremely stony loam	*GC, GW-GC	*A-2	30-55	25-40	30-50	25-45	10-45	5-35	30-40	15-20
	3-12	*Very cobbly clay loam, very cobbly loam	*GC	*A-7, A-2	0-15	30-50	55-75	50-70	45-60	35-50	40-50	20-25
	12-22	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
514:												
Glencabin-------	0-4	*Gravelly ashy sandy loam	*SC-SM, SM	*A-2, A-1	0	0-10	60-90	55-85	35-55	15-30	15-35	NP-10
	4-21	*Ashy sandy loam, gravelly ashy sandy loam	*SC-SM, SM	*A-2, A-1, A-4	0	0-15	60-100	55-100	35-70	15-40	25-35	5-10
	21-54	*Ashy sandy loam, ashy loamy sand, gravelly ashy sandy loam	*SC-SM, SM	*A-1, A-2	0	0-15	60-100	55-100	35-70	15-30	15-30	NP-10
	54-64	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
516:												
Pernty, south---	0-3	*Gravelly silt loam	*ML, CL, GC-GM	*A-4, A-6	0	0-15	60-80	55-75	50-70	40-65	25-40	5-20
	3-12	*Very cobbly clay loam, very cobbly loam	*GC	*A-7, A-2	0-15	30-50	55-75	50-70	45-60	35-50	40-50	20-25
	12-22	*Bedrock			---	---	---	---	---	---	---	---
Westbutte, north	0-3	*Extremely stony loam	*GM, GC, GP-GC	*A-2	30-55	10-45	25-50	20-45	10-30	5-25	30-40	10-15
	3-11	*Very cobbly loam, extremely cobbly clay loam, very cobbly clay loam, extremely cobbly loam, very stony loam	*GC, SC	*A-6, A-7, A-2	0-50	30-55	30-85	25-80	25-60	20-50	30-45	10-20
	11-21	*Extremely cobbly clay loam, very cobbly loam, very stony loam, very cobbly clay loam, extremely cobbly loam	*GC	*A-6, A-2, A-7	0-50	30-55	30-65	25-60	25-60	20-50	30-45	10-20
	21-31	*Bedrock			---	---	---	---	---	---	---	---
Ninemile--------	0-2	*Very cobbly clay loam	*GC, SC	*A-7, A-2	0-10	25-40	60-90	40-70	30-60	25-50	40-55	20-30
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---
517:												
Picturerock-----	0-3	*Ashy loam	*CL	*A-6, A-4	0	0	100	100	85-95	60-75	25-40	10-20
	3-33	*Ashy sandy loam, ashy clay loam, ashy loam	*SC, CL	*A-2, A-6	0	0	100	100	60-100	30-80	20-40	10-20
	33-60	*Very paragravelly ashy loam, very paragravelly ashy sandy clay loam	*CL, SC	*A-6, A-2	0	0	100	100	80-95	35-75	25-40	10-20

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
518:												
Pitcheranch-----	0-20	*Silt loam	*CL	*A-6, A-7	0	0	100	100	80-100	65-90	35-45	15-20
	20-60	*Sandy loam	*SC, SC-SM	*A-2, A-1, A-6	0	0	100	100	45-65	25-40	20-30	5-15
519:												
Pitcheranch-----	0-2	*Ashy mucky silt loam	*OH, OL	*A-7, A-4	0	0	100	100	90-100	70-100	40-60	5-15
	2-30	*Ashy loam, ashy fine sandy loam, ashy sandy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	60-90	30-70	20-40	5-15
	30-60	*Ashy loamy sand, ashy fine sandy loam, ashy loamy fine sand, ashy loam, ashy sandy loam	*SM, CL	*A-2, A-1, A-6	0	0	100	100	50-90	15-70	15-30	NP-15
Chinarise-------	0-5	*Ashy silt loam	*ML, CL-ML	*A-4, A-7	0	0	100	100	95-100	75-95	25-45	5-15
	5-18	*Ashy silt loam, ashy loam, ashy silty clay loam	*CL, CL-ML	*A-4, A-7	0	0	100	100	100	65-95	25-45	5-20
	18-50	*Ashy fine sandy loam, ashy loam, ashy silt loam, ashy sandy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	80-100	35-95	25-40	5-20
	50-60	*Ashy fine sandy loam, ashy loamy fine sand, ashy sandy loam, ashy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	90-100	30-85	20-40	5-15
520:												
Playas----------	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
521:												
Playas, saline--	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
522:												
Playas----------	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
522:												
Helphenstein	0-2	*Fine sandy loam	*CL-ML, SM, CL	*A-4	0	0	100	100	70-85	40-55	15-25	NP-10
	2-8	*Silt loam	*CL-ML, CL	*A-4, A-6	0	0	100	100	90-100	70-100	20-35	5-15
	8-34	*Silty clay loam, silt loam, loam, clay loam	*CL	*A-6, A-7	0	0	100	100	85-100	60-95	30-45	15-25
	34-60	*Loam, silt loam, fine sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-90	20-40	5-20
523:												
Poorjug	0-2	*Gravelly loamy fine sand	*SC-SM, SP-SM, SC	*A-1, A-2	0-10	0-10	55-80	50-75	30-55	10-25	15-25	NP-10
	2-5	*Gravelly loam	*SC, GC	*A-6, A-2	0-10	0-10	55-80	50-75	40-65	30-45	30-35	10-15
	5-15	*Very cobbly loam, very cobbly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam	*SC, GC-GM	*A-2, A-6, A-1	0-10	0-50	35-90	30-85	25-65	15-60	20-35	5-15
	15-25	*Bedrock			---	---	---	---	---	---	---	---
Poorjug, overblown	0-13	*Gravelly loamy fine sand	*SC-SM, SP-SM, SC	*A-1, A-2	0-10	0-10	55-80	50-75	30-55	10-25	15-25	NP-10
	13-19	*Gravelly loam	*SC, GC	*A-6, A-2	0-10	0-10	55-80	50-75	40-65	30-45	30-35	10-15
	19-29	*Bedrock			---	---	---	---	---	---	---	---
524:												
Poorjug	0-2	*Very gravelly sandy loam	*GC-GM, SC	*A-1, A-2	0-10	0-15	35-60	30-55	20-35	15-20	15-25	5-10
	2-5	*Gravelly loam	*SC, GC	*A-6, A-2	0-10	0-10	55-80	50-75	40-65	30-45	30-35	10-15
	5-15	*Very cobbly loam, very cobbly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam	*SC, GC-GM	*A-2, A-6, A-1	0-10	0-50	35-90	30-85	25-65	15-60	20-35	5-15
	15-25	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0-60	*Bedrock			---	---	---	---	---	---	---	---
525:												
Porterfield	0-2	*Very gravelly ashy fine sandy loam	*GC-GM, GC	*A-1, A-2	5-15	5-10	45-65	40-60	25-45	15-30	20-25	5-10
	2-9	*Gravelly ashy loam, ashy loam	*GC, CL	*A-6, A-2	0-10	0-10	60-100	55-90	40-85	30-75	30-35	10-20
	9-12	*Gravelly ashy coarse sandy loam, ashy loam	*SC-SM, SM, CL-ML	*A-1, A-4	0	0-10	60-100	55-90	30-85	15-75	15-25	NP-5
	12-22	*Diatomaceous material			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
525:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
526:												
Puzzlebark------	0-2	*Ashy loamy sand	*SM, SC-SM	*A-2	0	0	95-100	90-100	65-80	15-30	0-20	NP-5
	2-8	*Ashy sandy loam, gravelly ashy sandy loam	*SC, SC-SM	*A-2, A-1, A-6	0	0-10	75-100	70-100	40-70	20-40	20-30	5-15
	8-14	*Gravelly ashy sandy clay loam, ashy sandy loam, ashy sandy clay loam, gravelly ashy sandy loam	*SC, SC-SM	*A-2, A-1, A-6	0	0-10	65-100	60-100	50-80	15-40	20-35	5-15
	14-21	*Cemented material			---	---	---	---	---	---	---	---
	21-31	*Bedrock			---	---	---	---	---	---	---	---
Morehouse, moderately steep----------	0-5	*Ashy sand	*SM, SC-SM	*A-2	0	0	80-100	75-100	55-70	25-30	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-60	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
Morehouse, gently sloping	0-5	*Ashy sand	*SM, SC-SM	*A-2	0	0	80-100	75-100	55-70	25-30	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-60	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
527:												
Puzzlebark------	0-2	*Gravelly ashy fine sandy loam	*SC-SM, SC, SM	*A-2, A-4, A-1	0	0-15	65-80	60-75	45-60	20-40	15-30	NP-10
	2-8	*Ashy sandy loam, gravelly ashy sandy loam	*SC, SC-SM	*A-2, A-1, A-6	0	0-10	75-100	70-100	40-70	20-40	20-30	5-15
	8-14	*Gravelly ashy sandy clay loam, ashy sandy loam, ashy sandy clay loam, gravelly ashy sandy loam	*SC, SC-SM	*A-2, A-1, A-6	0	0-10	65-100	60-100	50-80	15-40	20-35	5-15
	14-21	*Cemented material			---	---	---	---	---	---	---	---
	21-31	*Bedrock			---	---	---	---	---	---	---	---
Sandrock--------	0-3	*Ashy loamy fine sand	*SM, SC-SM	*A-2, A-4	0	0-10	90-100	85-100	65-85	25-40	15-25	NP-5
	3-8	*Channery ashy fine sandy loam, gravelly ashy fine sandy loam, channery ashy very fine sandy loam, gravelly ashy very fine sandy loam	*SC, SC-SM, CL	*A-4, A-6, A-2	0	10-30	85-100	80-100	55-80	30-60	20-30	5-15
	8-12	*Channery ashy sandy clay loam, ashy sandy clay loam, channery ashy clay loam, ashy clay loam	*SC, CL	*A-6, A-2	0	10-40	95-100	90-100	55-90	25-80	30-40	10-20
	12-22	*Bedrock			---	---	---	---	---	---	---	---
528:												
Rabbithills, overblown------	0-10	*Gravelly loamy fine sand	*SM, SP-SM, SC-SM	*A-1, A-2	0	0	55-80	50-75	25-60	10-20	0-20	NP-5
	10-12	*Loamy sand, sandy loam, fine sandy loam	*SC-SM, SM, CL-ML	*A-2, A-4	0	0	80-100	75-100	35-85	15-70	0-25	NP-5
	12-22	*Cemented fine sandy loam, cemented loamy fine sand	*CL, SM	*A-4, A-2	0	0	90-100	85-100	65-85	35-55	15-25	NP-10
	22-40	*Loam, gravelly sandy loam, gravelly loamy sand, sandy loam, clay loam, loamy sand	*SC, CL, SW-SM	*A-4, A-6, A-1	0	0	60-100	55-100	15-70	12-65	0-30	NP-20
	40-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
528:												
Rabbithills-----	0-3	*Gravelly fine sandy loam	*SC-SM, SC, GM	*A-2, A-4	0	0	55-80	50-75	40-60	30-40	10-25	NP-10
	3-12	*Sandy loam, fine sandy loam, loam	*SC, SM, CL	*A-4, A-1	0	0	80-100	75-100	35-85	15-70	15-25	NP-10
	12-22	*Cemented fine sandy loam, cemented loamy fine sand	*CL, SM	*A-4, A-2	0	0	90-100	85-100	65-85	35-55	15-25	NP-10
	22-40	*Loam, gravelly sandy loam, gravelly loamy sand, sandy loam, clay loam, loamy sand	*SC, CL, SW-SM	*A-4, A-6, A-1	0	0	60-100	55-100	15-70	12-65	0-30	NP-20
	40-60	*Bedrock			---	---	---	---	---	---	---	---
529:												
Rabbithills-----	0-3	*Gravelly sand	*SP-SM	*A-1	0	0	55-80	50-75	30-50	5-10	0-20	NP-5
	3-12	*Sandy loam, fine sandy loam, loam	*SC, SM, CL	*A-4, A-1	0	0	80-100	75-100	35-85	15-70	15-25	NP-10
	12-22	*Cemented fine sandy loam, cemented loamy fine sand	*CL, SM	*A-4, A-2	0	0	90-100	85-100	65-85	35-55	15-25	NP-10
	22-40	*Loam, gravelly sandy loam, gravelly loamy sand, sandy loam, clay loam, loamy sand	*SC, CL, SW-SM	*A-4, A-6, A-1	0	0	60-100	55-100	15-70	12-65	0-30	NP-20
	40-60	*Bedrock			---	---	---	---	---	---	---	---
Rabbithills, overblown------	0-10	*Sand	*SP-SM, SC-SM	*A-3, A-1, A-2	0	0	95-100	95-100	50-70	5-15	0-20	NP-5
	10-12	*Loamy sand, sandy loam, fine sandy loam	*SC-SM, SM, CL-ML	*A-2, A-4	0	0	80-100	75-100	35-85	15-70	0-25	NP-5
	12-22	*Cemented fine sandy loam, cemented loamy fine sand	*CL, SM	*A-4, A-2	0	0	90-100	85-100	65-85	35-55	15-25	NP-10
	22-40	*Loam, gravelly sandy loam, gravelly loamy sand, sandy loam, clay loam, loamy sand	*SC, CL, SW-SM	*A-4, A-6, A-1	0	0	60-100	55-100	15-70	12-65	0-30	NP-20
	40-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
530:												
Rabbithills-----	0-3	*Gravelly loamy sand	*SM, SP-SM, SC-SM	*A-1	0	0	55-80	50-75	30-50	10-15	0-20	NP-5
	3-12	*Sandy loam, fine sandy loam, loam	*SC, SM, CL	*A-4, A-1	0	0	80-100	75-100	35-85	15-70	15-25	NP-10
	12-22	*Cemented fine sandy loam, cemented loamy fine sand	*CL, SM	*A-4, A-2	0	0	90-100	85-100	65-85	35-55	15-25	NP-10
	22-40	*Loam, gravelly sandy loam, gravelly loamy sand, sandy loam, clay loam, loamy sand	*SC, CL, SW-SM	*A-4, A-6, A-1	0	0	60-100	55-100	15-70	12-65	0-30	NP-20
	40-60	*Bedrock			---	---	---	---	---	---	---	---
531:												
Rabbithills, sodic----------	0-3	*Gravelly sandy loam	*SC-SM, SC, GM	*A-2, A-1	0	0	55-80	50-75	35-50	20-30	10-25	NP-10
	3-12	*Sandy loam, fine sandy loam, loam	*SC, SM, CL	*A-4, A-1	0	0	80-100	75-100	35-85	15-70	15-25	NP-10
	12-22	*Cemented fine sandy loam, cemented loamy fine sand	*CL, SM	*A-4, A-2	0	0	90-100	85-100	65-85	35-55	15-25	NP-10
	22-40	*Loam, gravelly sandy loam, gravelly loamy sand, sandy loam, clay loam, loamy sand	*SC, CL, SW-SM	*A-4, A-6, A-1	0	0	60-100	55-100	15-70	12-65	0-30	NP-20
	40-60	*Bedrock			---	---	---	---	---	---	---	---
532:												
Rabbithills-----	0-13	*Gravelly loam	*GC, SC	*A-4, A-6, A-2	0	0	55-80	50-75	40-65	30-50	30-35	10-20
	13-22	*Cemented fine sandy loam, cemented loamy fine sand	*CL, SM	*A-4, A-2	0	0	90-100	85-100	65-85	35-55	15-25	NP-10
	22-45	*Very gravelly sandy loam, very gravelly loamy sand	*GC-GM, GC, GW-GM	*A-1, A-2	0	0-15	40-65	35-60	15-45	10-25	15-25	NP-10
	45-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
533:												
Rabbithills-----	0-3	*Very gravelly loamy sand	*GW-GM, GC-GM	*A-1	0	0-10	30-55	25-50	15-30	5-15	0-20	NP-5
	3-12	*Sandy loam, fine sandy loam, loam	*SC, SM, CL	*A-4, A-1	0	0	80-100	75-100	35-85	15-70	15-25	NP-10
	12-22	*Cemented fine sandy loam, cemented loamy fine sand	*CL, SM	*A-4, A-2	0	0	90-100	85-100	65-85	35-55	15-25	NP-10
	22-40	*Loam, gravelly sandy loam, gravelly loamy sand, sandy loam, clay loam, loamy sand	*SC, CL, SW-SM	*A-4, A-6, A-1	0	0	60-100	55-100	15-70	12-65	0-30	NP-20
	40-60	*Bedrock			---	---	---	---	---	---	---	---
534:												
Rabbithills-----	0-3	*Gravelly sandy loam	*SC-SM, SC, GM	*A-2, A-1	0	0	55-80	50-75	35-50	20-30	10-25	NP-10
	3-12	*Sandy loam, fine sandy loam, loam	*SC, SM, CL	*A-4, A-1	0	0	80-100	75-100	35-85	15-70	15-25	NP-10
	12-22	*Cemented fine sandy loam, cemented loamy fine sand	*CL, SM	*A-4, A-2	0	0	90-100	85-100	65-85	35-55	15-25	NP-10
	22-40	*Loam, gravelly sandy loam, gravelly loamy sand, sandy loam, clay loam, loamy sand	*SC, CL, SW-SM	*A-4, A-6, A-1	0	0	60-100	55-100	15-70	12-65	0-30	NP-20
	40-60	*Bedrock			---	---	---	---	---	---	---	---
Helphenstein, frequently ponded---------	0-4	*Ashy silty clay loam	*CL	*A-6	0	0	95-100	90-100	85-100	75-95	35-45	20-25
	4-9	*Ashy silty clay loam	*CL	*A-6	0	0	95-100	90-100	85-100	75-95	35-45	20-25
	9-18	*Ashy sandy loam	*SC-SM, SM	*A-2, A-4	0	0	95-100	90-100	55-70	25-40	15-25	NP-5
	18-60	*Ashy loam, ashy fine sandy loam	*CL-ML, SC-SM, CL	*A-4, A-2	0	0	95-100	90-100	65-95	35-75	20-30	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
535:												
Ratto-----------	0-3	*Very cobbly loam	*GC, GC-GM	*A-2, A-1, A-6	0-10	25-65	50-70	45-65	35-60	25-50	25-30	5-15
	3-9	*Gravelly clay loam, clay loam	*CL, GC	*A-6, A-2, A-7	0	0-10	60-90	55-85	45-80	35-65	35-45	15-20
	9-15	*Clay loam, clay, gravelly clay loam	*CL, GC, CH	*A-7, A-2	0	0-10	60-95	55-90	45-90	35-85	45-50	25-30
	15-19	*Cemented material			---	---	---	---	---	---	---	---
	19-60	*Gravelly loamy sand, very gravelly loamy sand	*SC-SM, GP-GM	*A-1, A-2	0	0-10	45-80	40-75	25-60	10-25	15-20	NP-5
536:												
Raz, overblown--	0-4	*Cobbly fine sandy loam	*SC-SM, SC	*A-4, A-2	0	15-30	70-85	65-80	50-65	35-45	20-30	5-10
	4-12	*Sandy clay loam, gravelly loam, clay loam	*SC, CL	*A-6, A-2	0	0-10	65-95	60-90	50-90	25-70	30-40	10-20
	12-17	*Sandy loam, gravelly loam, clay loam	*SC, SC-SM, CL	*A-2, A-1, A-6	0	0-10	65-95	60-90	35-90	15-70	25-40	5-20
	17-30	*Cemented material			---	---	---	---	---	---	---	---
	30-40	*Bedrock			---	---	---	---	---	---	---	---
537:												
Raz-------------	0-4	*Cobbly sandy loam	*SC-SM, SC	*A-1, A-2	0	15-30	70-85	65-80	40-55	20-30	20-30	5-10
	4-12	*Sandy clay loam, gravelly loam, clay loam	*SC, CL	*A-6, A-2	0	0-10	65-95	60-90	50-90	25-70	30-40	10-20
	12-17	*Sandy loam, gravelly loam, clay loam	*SC, SC-SM, CL	*A-2, A-1, A-6	0	0-10	65-95	60-90	35-90	15-70	25-40	5-20
	17-30	*Cemented material			---	---	---	---	---	---	---	---
	30-40	*Bedrock			---	---	---	---	---	---	---	---
Brace-----------	0-10	*Cobbly loam	*CL, GC-GM	*A-6, A-4	0-10	15-30	60-85	55-80	50-75	45-60	25-40	5-20
	10-14	*Cobbly loam, sandy clay loam, clay loam, cobbly sandy clay loam, loam	*CL, SC	*A-6, A-2, A-7	0-10	0-30	80-95	65-90	60-85	25-75	30-45	10-25
	14-22	*Cobbly clay loam, gravelly loam, gravelly clay loam	*CL, SC	*A-6, A-2	0	0-25	75-90	55-80	50-75	30-60	30-40	10-20
	22-26	*Cemented material			---	---	---	---	---	---	---	---
	26-36	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
538:												
Raz, high precipitation--	0-4	*Very cobbly loam	*GC	*A-6, A-2	0	25-45	45-70	40-65	35-55	30-45	25-40	10-20
	4-12	*Sandy clay loam, gravelly loam, clay loam	*SC, CL	*A-6, A-2	0	0-10	65-95	60-90	50-90	25-70	30-40	10-20
	12-17	*Sandy loam, gravelly loam, clay loam	*SC, SC-SM, CL	*A-2, A-1, A-6	0	0-10	65-95	60-90	35-90	15-70	25-40	5-20
	17-30	*Cemented material			---	---	---	---	---	---	---	---
	30-40	*Bedrock			---	---	---	---	---	---	---	---
Brace, high precipitation--	0-10	*Stony loam	*SC, CL	*A-4, A-2, A-6	15-30	10-15	70-95	65-90	50-75	35-60	25-40	10-20
	10-14	*Cobbly loam, sandy clay loam, clay loam, cobbly sandy clay loam, loam	*CL, SC	*A-6, A-2, A-7	0-10	0-30	80-95	65-90	60-85	25-75	30-45	10-25
	14-22	*Cobbly clay loam, gravelly loam, gravelly clay loam	*CL, SC	*A-6, A-2	0	0-25	75-90	55-80	50-75	30-60	30-40	10-20
	22-26	*Cemented material			---	---	---	---	---	---	---	---
	26-36	*Bedrock			---	---	---	---	---	---	---	---
539:												
Raz, low precipitation--	0-4	*Very cobbly loam	*GC	*A-6, A-2	0	25-45	45-70	40-65	35-55	30-45	25-40	10-20
	4-12	*Sandy clay loam, gravelly loam, clay loam	*SC, CL	*A-6, A-2	0	0-10	65-95	60-90	50-90	25-70	30-40	10-20
	12-17	*Sandy loam, gravelly loam, clay loam	*SC, SC-SM, CL	*A-2, A-1, A-6	0	0-10	65-95	60-90	35-90	15-70	25-40	5-20
	17-30	*Cemented material			---	---	---	---	---	---	---	---
	30-40	*Bedrock			---	---	---	---	---	---	---	---
Brace, low precipitation--	0-10	*Stony loam	*SC, CL	*A-4, A-2, A-6	15-30	10-15	70-95	65-90	50-75	35-60	25-40	10-20
	10-14	*Cobbly loam, sandy clay loam, clay loam, cobbly sandy clay loam, loam	*CL, SC	*A-6, A-2, A-7	0-10	0-30	80-95	65-90	60-85	25-75	30-45	10-25
	14-22	*Cobbly clay loam, gravelly loam, gravelly clay loam	*CL, SC	*A-6, A-2	0	0-25	75-90	55-80	50-75	30-60	30-40	10-20
	22-26	*Cemented material			---	---	---	---	---	---	---	---
	26-36	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
540:												
Raz, overblown--	0-10	*Gravelly loamy sand	*SM, SC-SM	*A-1, A-2	0	0-10	60-80	55-75	30-60	15-25	15-25	NP-5
	10-12	*Sandy clay loam, gravelly loam, clay loam	*SC, CL	*A-6, A-2	0	0-10	65-95	60-90	50-90	25-70	30-40	10-20
	12-17	*Sandy loam, gravelly loam, clay loam	*SC, SC-SM, CL	*A-2, A-1, A-6	0	0-10	65-95	60-90	35-90	15-70	25-40	5-20
	17-30	*Cemented material			---	---	---	---	---	---	---	---
	30-40	*Bedrock			---	---	---	---	---	---	---	---
Brace, overblown	0-10	*Gravelly loamy sand	*SM, SC-SM	*A-2, A-1	0-5	0-10	75-90	55-75	45-70	15-25	10-20	NP-5
	10-14	*Cobbly loam, sandy clay loam, clay loam, cobbly sandy clay loam, loam	*CL, SC	*A-6, A-2, A-7	0-10	0-30	80-95	65-90	60-85	25-75	30-45	10-25
	14-22	*Cobbly clay loam, gravelly loam, gravelly clay loam	*CL, SC	*A-6, A-2	0	0-25	75-90	55-80	50-75	30-60	30-40	10-20
	22-26	*Cemented material			---	---	---	---	---	---	---	---
	26-36	*Bedrock			---	---	---	---	---	---	---	---
541:												
Raz-------------	0-4	*Cobbly loam	*CL, GC	*A-6, A-4	0	15-30	70-85	65-80	55-75	45-60	25-40	10-20
	4-12	*Sandy clay loam, gravelly loam, clay loam	*SC, CL	*A-6, A-2	0	0-10	65-95	60-90	50-90	25-70	30-40	10-20
	12-17	*Sandy loam, gravelly loam, clay loam	*SC, SC-SM, CL	*A-2, A-1, A-6	0	0-10	65-95	60-90	35-90	15-70	25-40	5-20
	17-30	*Cemented material			---	---	---	---	---	---	---	---
	30-40	*Bedrock			---	---	---	---	---	---	---	---
Poorjug---------	0-2	*Gravelly fine sandy loam	*SC, GC-GM	*A-4, A-6, A-1	0-10	0-10	55-80	50-75	35-60	20-40	20-30	5-15
	2-5	*Gravelly loam	*SC, GC	*A-6, A-2	0-10	0-10	55-80	50-75	40-65	30-45	30-35	10-15
	5-19	*Very cobbly loam, very cobbly fine sandy loam, very gravelly sandy loam, very cobbly sandy loam	*SC, GC-GM	*A-2, A-6, A-1	0-10	0-50	35-90	30-85	25-65	15-60	20-35	5-15
	19-29	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
542:												
Raz	0-4	*Gravelly sandy loam	*SC-SM, SC	*A-1, A-2	0	0-10	60-80	55-75	30-55	15-30	25-30	5-10
	4-12	*Sandy clay loam, gravelly loam, clay loam	*SC, CL	*A-6, A-2	0	0-10	65-95	60-90	50-90	25-70	30-40	10-20
	12-17	*Sandy loam, gravelly loam, clay loam	*SC, SC-SM, CL	*A-2, A-1, A-6	0	0-10	65-95	60-90	35-90	15-70	25-40	5-20
	17-30	*Cemented material			---	---	---	---	---	---	---	---
	30-40	*Bedrock			---	---	---	---	---	---	---	---
Reallis	0-4	*Gravelly loamy sand	*SM, SP-SM, SC-SM	*A-1	0	0	55-80	50-75	25-50	10-20	15-25	NP-5
	4-10	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	20-25	NP-10
	10-16	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	15-25	NP-10
	16-29	*Fine sandy loam, sandy loam	*CL, SM	*A-4, A-1	0	0	85-100	80-100	45-85	25-55	15-30	NP-10
	29-44	*Loamy fine sand, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*SM, SC, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-90	10-50	15-30	NP-10
	44-60	*Loam, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*CL, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-95	10-75	15-30	NP-10
543:												
Raztack	0-4	*Ashy loam	*CL-ML, CL	*A-4, A-6	0	0	100	95-100	75-95	55-75	20-30	5-15
	4-14	*Ashy clay loam, ashy loam	*CL	*A-6, A-7, A-4	0	0	100	95-100	75-100	55-80	30-45	10-25
	14-33	*Clay	*CH	*A-7	0	0	100	100	90-100	75-95	50-70	30-40
	33-44	*Clay loam, sandy clay loam	*CL, CH, SC	*A-6, A-7	0	0	95-100	90-100	70-100	40-80	30-50	15-30
	44-50	*Cemented loamy sand, Cemented sandy loam	*SC-SM, SC, SM	*A-2, A-1, A-4	0	0	100	95-100	45-75	15-40	15-25	NP-10
	50-70	*Stratified loamy sand to clay loam	*SC-SM, SM, CL	*A-2, A-1, A-7	0	0	90-100	85-100	45-100	15-80	15-45	NP-25

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
543:												
Silverash-------	0-2	*Ashy fine sandy loam	*CL, SC-SM	*A-4	0	0	100	100	70-85	40-55	20-30	5-10
	2-8	*Ashy loam, ashy silt loam	*CL, CL-ML	*A-4	0	0	100	100	85-95	60-90	20-30	5-10
	8-21	*Clay, clay loam, silty clay loam	*CH, SC	*A-7	0	0	100	100	80-95	40-70	45-60	25-40
	21-62	*Sandy clay loam, very fine sandy loam, clay loam	*CL, SC	*A-6, A-4, A-7	0	0	100	100	80-95	40-70	30-45	10-25
Embal-----------	0-2	*Ashy very fine sandy loam	*CL-ML, ML	*A-4	0	0	85-100	80-100	70-100	55-90	10-15	NP-5
	2-6	*Ashy fine sandy loam, ashy sandy loam, ashy silt loam	*SC, SC-SM	*A-2, A-4	0	0	85-100	80-100	45-80	30-70	20-30	5-10
	6-25	*Ashy fine sandy loam, ashy sandy loam	*SC, SC-SM	*A-2, A-4	0	0	80-100	75-100	40-80	30-70	20-30	5-10
	25-34	*Cobbly ashy coarse sandy loam, gravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1, A-4	0	0-25	35-100	30-100	15-70	15-40	20-30	5-10
	34-42	*Gravelly ashy sandy loam, very paragravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1	0	0-15	65-95	60-90	35-65	15-35	20-30	5-10
	42-60	*Cemented gravelly ashy sandy loam, cemented very paragravelly ashy sandy loam	*SC-SM, SC	*A-2, A-1	0	0-15	65-95	60-90	35-65	15-35	20-30	5-10
544:												
Reallis---------	0-4	*Fine sandy loam	*CL-ML, SM	*A-4	0	0	100	100	70-85	40-55	20-25	NP-5
	4-10	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	20-25	NP-10
	10-16	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	15-25	NP-10
	16-29	*Fine sandy loam, sandy loam	*CL, SM	*A-4, A-1	0	0	85-100	80-100	45-85	25-55	15-30	NP-10
	29-44	*Loamy fine sand, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*SM, SC, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-90	10-50	15-30	NP-10
	44-60	*Loam, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*CL, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-95	10-75	15-30	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
545:												
Reallis---------	0-4	*Loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	15-25	NP-5
	4-10	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	20-25	NP-10
	10-16	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	15-25	NP-10
	16-29	*Fine sandy loam, sandy loam	*CL, SM	*A-4, A-1	0	0	85-100	80-100	45-85	25-55	15-30	NP-10
	29-44	*Loamy fine sand, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*SM, SC, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-90	10-50	15-30	NP-10
	44-60	*Loam, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*CL, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-95	10-75	15-30	NP-10
546:												
Reallis, sandy loam surface---	0-4	*Sandy loam	*SC-SM, SM	*A-2, A-4	0	0	100	100	60-70	30-40	20-25	NP-5
	4-10	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	20-25	NP-10
	10-16	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	15-25	NP-10
	16-29	*Fine sandy loam, sandy loam	*CL, SM	*A-4, A-1	0	0	85-100	80-100	45-85	25-55	15-30	NP-10
	29-44	*Loamy fine sand, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*SM, SC, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-90	10-50	15-30	NP-10
	44-60	*Loam, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*CL, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-95	10-75	15-30	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
546: Reallis, fine sandy loam surface--------	0-4	*Fine sandy loam	*CL-ML, SM	*A-4	0	0	100	100	70-85	40-55	20-25	NP-5
	4-10	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	20-25	NP-10
	10-16	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	15-25	NP-10
	16-29	*Fine sandy loam, sandy loam	*CL, SM	*A-4, A-1	0	0	85-100	80-100	45-85	25-55	15-30	NP-10
	29-44	*Loamy fine sand, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*SM, SC, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-90	10-50	15-30	NP-10
	44-60	*Loam, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*CL, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-95	10-75	15-30	NP-10
547: Reallis---------	0-4	*Fine sandy loam	*CL-ML, SM	*A-4	0	0	100	100	70-85	40-55	20-25	NP-5
	4-10	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	20-25	NP-10
	10-16	*Sandy loam	*SC-SM, SC, SM	*A-2, A-4	0	0	100	100	60-70	30-40	15-25	NP-10
	16-29	*Fine sandy loam, sandy loam	*CL, SM	*A-4, A-1	0	0	85-100	80-100	45-85	25-55	15-30	NP-10
	29-44	*Loamy fine sand, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*SM, SC, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-90	10-50	15-30	NP-10
	44-60	*Loam, gravelly loamy sand, gravelly sandy loam, sandy loam, loamy sand	*CL, SW-SM	*A-4, A-1	0	0	65-100	60-100	30-95	10-75	15-30	NP-10
Yankeewell------	0-3	*Very cobbly sandy loam	*SC-SM, SC, SP-SC	*A-1, A-2	0-10	30-40	55-80	50-70	25-50	10-30	20-25	5-10
	3-6	*Gravelly loam, fine sandy loam, loam, cobbly sandy loam	*SC	*A-6, A-2	0-10	0-30	70-90	65-85	40-75	15-50	25-35	10-20
	6-11	*Clay loam, cobbly clay loam, gravelly clay loam	*CL, CH	*A-7, A-6	0-10	0-25	80-100	75-100	70-95	50-80	40-50	20-25
	11-25	*Cemented material			---	---	---	---	---	---	---	---
	25-35	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
548:												
Redcanyon, north	0-8	*Extremely bouldery loam	*CL, SC, GC	*A-6, A-2	50-75	10-25	45-75	40-70	25-65	20-50	30-40	10-20
	8-18	*Very bouldery loam	*CL, GC	*A-6, A-2	40-70	10-15	55-90	50-85	35-70	25-60	30-40	10-20
	18-29	*Extremely bouldery loam, extremely bouldery clay loam, very bouldery loam	*GC, CL	*A-2, A-6	30-60	10-25	45-75	40-70	30-65	20-60	30-40	10-20
	29-31	*Extremely bouldery loam	*GC, CL	*A-2, A-6	50-75	10-25	45-75	40-70	25-60	20-55	30-35	10-20
	31-41	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
549:												
Redcanyon, south	0-8	*Extremely bouldery loam	*CL, SC, GC	*A-6, A-2	50-75	10-25	45-75	40-70	25-65	20-50	30-40	10-20
	8-18	*Very bouldery loam	*CL, GC	*A-6, A-2	40-70	10-15	55-90	50-85	35-70	25-60	30-40	10-20
	18-29	*Extremely bouldery loam, extremely bouldery clay loam, very bouldery loam	*GC, CL	*A-2, A-6	30-60	10-25	45-75	40-70	30-65	20-60	30-40	10-20
	29-31	*Extremely bouldery loam	*GC, CL	*A-2, A-6	50-75	10-25	45-75	40-70	25-60	20-55	30-35	10-20
	31-41	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
550:												
Redcliff, south	0-3	*Very gravelly loam	*GC, GC-GM	*A-2, A-1, A-4	0-10	0-15	45-60	40-55	35-50	25-40	25-30	5-10
	3-12	*Very cobbly sandy loam, gravelly loam	*SP-SC, GC-GM	*A-2, A-1, A-4	0	0-40	55-80	50-75	25-70	10-60	25-35	5-10
	12-32	*Very cobbly sandy clay loam, very gravelly sandy loam	*GC, GW-GC	*A-2, A-1, A-7	0	0-45	40-70	35-65	15-65	10-40	25-45	5-20
	32-42	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
551:												
Reese-----------	0-4	*Silty clay	*CH	*A-7	0	0	100	100	95-100	90-95	55-70	30-40
	4-10	*Loam	*ML, CL-ML, CL	*A-4, A-6	0	0	100	100	85-95	60-75	20-40	5-15
	10-33	*Loam, clay loam	*CL	*A-6, A-4	0	0	100	100	85-100	60-80	30-40	10-20
	33-44	*Loam, coarse sandy loam, sandy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	60-90	35-65	20-35	5-15
	44-60	*Loam, sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-75	20-35	5-15

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
551:												
Ozamis----------	0-10	*Silty clay	*CH	*A-7	0	0	100	100	95-100	90-95	55-65	30-35
	10-34	*Silt loam, silty clay loam, clay loam, loam, silty clay	*CL, CH	*A-6, A-7	0	0	90-100	85-100	80-95	60-95	35-65	15-35
	34-36	*Ashy coarse sand	*SP-SM, SC-SM	*A-3, A-1, A-2	0	0	100	100	50-70	5-15	0-15	NP-5
	36-60	*Very fine sandy loam, silt loam, sandy loam, silty clay loam, loam	*CL, SC	*A-4, A-7	0	0	100	100	60-95	40-95	25-45	10-25
552:												
Reluctan--------	0-2	*Loam	*CL	*A-6, A-4	0	0	95-100	90-100	85-95	60-75	25-40	10-20
	2-9	*Sandy loam, loam, gravelly loam	*CL, GC	*A-4, A-6, A-2	0	0-10	55-95	50-90	45-85	35-65	25-40	10-20
	9-26	*Sandy clay loam, gravelly loam, gravelly sandy clay loam	*CL, CH, SC	*A-7, A-6	0-5	0-20	80-100	70-95	55-90	40-70	35-50	15-25
	26-36	*Bedrock			---	---	---	---	---	---	---	---
553:												
Reluctan--------	0-2	*Stony sandy loam	*SC-SM, SC, SM	*A-1, A-2	15-30	0-10	70-95	65-80	35-55	15-30	20-30	NP-10
	2-9	*Sandy loam, loam, gravelly loam	*CL, GC	*A-4, A-6, A-2	0	0-10	55-95	50-90	45-85	35-65	25-40	10-20
	9-26	*Sandy clay loam, gravelly loam, gravelly sandy clay loam	*CL, CH, SC	*A-7, A-6	0-5	0-20	80-100	70-95	55-90	40-70	35-50	15-25
	26-36	*Bedrock			---	---	---	---	---	---	---	---
Arness----------	0-2	*Stony loam	*SC, SC-SM, CL	*A-6, A-4	15-25	0-10	75-95	70-80	55-75	40-55	20-40	5-15
	2-9	*Gravelly loam, cobbly loam	*CL, SC	*A-6, A-7, A-4	0-10	0-15	75-95	70-90	60-85	40-65	25-45	10-20
	9-17	*Gravelly clay loam, cobbly clay loam	*CL, SC	*A-6, A-7	0	0-15	80-95	60-85	55-80	40-60	35-45	20-25
	17-21	*Cemented material			---	---	---	---	---	---	---	---
	21-31	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
554:												
Riddleranch, north	0-8	*Stony loam	*CL, SC-SM	*A-4, A-2, A-6	20-25	10-25	75-85	70-80	50-75	30-60	25-35	5-15
	8-28	*Very cobbly loam, extremely cobbly loam, extremely stony loam, very gravelly clay loam, very gravelly loam	*GC, CL, SC, GW-GC	*A-2, A-6	10-45	25-55	25-90	20-85	15-65	10-60	30-40	10-20
	28-38	*Bedrock			---	---	---	---	---	---	---	---
555:												
Riddleranch, north	0-8	*Very gravelly loam	*GC, GC-GM	*A-2, A-6	0-15	0-15	35-55	30-50	25-50	20-40	25-35	5-15
	8-28	*Very cobbly loam, extremely cobbly loam, extremely stony loam, very gravelly clay loam, very gravelly loam	*GC, CL, SC, GW-GC	*A-2, A-6	10-45	25-55	25-90	20-85	15-65	10-60	30-40	10-20
	28-38	*Bedrock			---	---	---	---	---	---	---	---
556:												
Riddleranch, south	0-8	*Very stony sandy loam	*SC-SM, SM	*A-1, A-2	25-45	15-30	55-85	50-80	40-55	15-30	25-30	5-10
	8-28	*Very cobbly loam, extremely cobbly loam, extremely stony loam, very gravelly clay loam, very gravelly loam	*GC, CL, SC, GW-GC	*A-2, A-6	10-45	25-55	25-90	20-85	15-65	10-60	30-40	10-20
	28-38	*Bedrock			---	---	---	---	---	---	---	---
Lambring, north	0-5	*Very stony loam	*GM, GC-GM, SC	*A-4, A-6, A-1, A-2	25-45	15-25	50-90	45-80	30-75	25-50	25-40	5-15
	5-20	*Very cobbly sandy loam	*GP-GC, SM	*A-2, A-1	0-15	30-55	45-90	40-80	15-55	10-30	25-35	5-10
	20-50	*Extremely cobbly loamy sand, very cobbly loam, extremely cobbly sandy loam, very gravelly loam	*GP-GC, GC	*A-1, A-4	0-15	25-55	30-75	25-65	10-60	0-50	15-25	5-10
	50-60	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
557:												
Rinconflat------	0-4	*Stony loam	*SC, CL	*A-4, A-2, A-6	15-30	10-15	70-85	65-80	50-75	35-60	25-40	10-20
	4-29	*Very cobbly loam, very gravelly sandy clay loam, gravelly loam, very gravelly loam	*SC, GW-GC, GC	*A-2, A-4	0-10	0-30	35-75	30-75	15-65	10-40	30-40	10-20
	29-61	*Cobbly sandy loam, very cobbly sandy clay loam, very gravelly sandy loam	*SC, GW-GC	*A-2, A-1, A-6	0-10	10-30	35-80	30-75	15-65	10-40	20-40	5-20
558:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Rubble land-----	0-60	*Fragmental material			---	---	---	---	---	---	---	---
559:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Blackhills------	0-2	*Very gravelly ashy sand	*SP-SM GP-GM, SC	*A-1, A-2	0	0-10	50-65	25-50	15-30	5-15	15-30	NP-10
	2-8	*Very gravelly ashy sandy loam, very gravelly ashy loamy sand	*SC-SM, SW-SM, SC	*A-1, A-2	0	0-10	55-75	25-50	15-40	5-25	15-30	NP-10
	8-11	*Extremely gravelly ashy sandy loam, extremely gravelly ashy loamy sand	*SW-SC, GP, SC	*A-1, A-2	0	10-15	50-65	10-30	5-25	0-15	15-25	NP-10
	11-21	*Bedrock			---	---	---	---	---	---	---	---
560:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Blackhills------	0-2	*Extremely gravelly ashy sandy loam	*SP-SM GP-GM, SC	*A-1, A-2	0	10-15	50-65	15-30	10-25	5-15	15-30	NP-10
	2-8	*Very gravelly ashy sandy loam, very gravelly ashy loamy sand	*SC-SM, SW-SM, SC	*A-1, A-2	0	0-10	55-75	25-50	15-40	5-25	15-30	NP-10
	8-11	*Extremely gravelly ashy sandy loam, extremely gravelly ashy loamy sand	*SW-SC, GP, SC	*A-1, A-2	0	10-15	50-65	10-30	5-25	0-15	15-25	NP-10
	11-21	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
560:												
Glencabin, north	0-5	*Cobbly ashy fine sandy loam	*CL, ML, SC-SM	*A-4, A-2	0-10	15-30	70-95	65-90	45-80	35-70	25-35	5-10
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---
561:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Felcher, south--	0-4	*Very cobbly clay loam	*SC	*A-2	10-15	25-40	65-90	50-85	30-50	25-40	40-45	20-25
	4-14	*Very cobbly loam, very cobbly clay loam, very gravelly clay loam	*CL, GC	*A-6, A-7, A-2	0-10	25-45	55-80	40-70	30-65	15-55	25-45	10-20
	14-27	*Extremely stony sandy loam, extremely cobbly sandy loam, very cobbly loam	*SC, GW-GC, CL	*A-2, A-6	10-40	10-40	50-85	25-70	15-70	5-55	25-35	10-15
	27-37	*Bedrock			---	---	---	---	---	---	---	---
562:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Shukash---------	0-3	*Paragravelly ashy loamy sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	3-10	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	10-37	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-20	NP-5
	37-60	*Very stony sandy loam, very stony loam, extremely stony sandy loam, extremely stony loam	*SM, CL, GP-GC	*A-4, A-1	35-60	0-35	30-90	25-85	20-65	10-60	20-30	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
563:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Xeric Haplocambids---	0-3	*Extremely stony sandy loam	*GC, GW-GC, SC	*A-2, A-1	15-30	30-55	35-75	30-70	20-50	10-30	20-30	5-10
	3-18	*Very cobbly loam, extremely cobbly sandy loam, cobbly loam, very cobbly sandy loam, very cobbly sandy clay loam, very cobbly clay loam	*SC, GP-GC, CL	*A-2, A-1, A-7	0-15	30-55	35-85	30-80	10-65	5-60	20-45	5-25
	18-28	*Bedrock			---	---	---	---	---	---	---	---
564:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Xeric Haplocambids, south----------	0-3	*Extremely stony sandy loam	*GC, GW-GC, SC	*A-2, A-1	15-30	30-55	35-75	30-70	20-50	10-30	20-30	5-10
	3-18	*Very cobbly loam, extremely cobbly sandy loam, cobbly loam, very cobbly sandy loam, very cobbly sandy clay loam, very cobbly clay loam	*SC, GP-GC, CL	*A-2, A-1, A-7	0-15	30-55	35-85	30-80	10-65	5-60	20-45	5-25
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Rubble land-----	0-60	*Fragmental material			---	---	---	---	---	---	---	---
565:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Xerolls, south--	0-7	*Extremely stony ashy fine sandy loam	*GP-GC, GC	*A-1, A-2	30-60	25-60	20-70	15-65	5-50	5-30	20-30	5-10
	7-11	*Extremely stony ashy fine sandy loam, very cobbly ashy loam, very stony ashy fine sandy loam, gravelly ashy sandy loam, very gravelly ashy clay loam	*GC-GM, GP-GC, CL	*A-1, A-6	0-55	10-55	35-95	30-90	15-80	5-65	20-40	5-20
	11-21	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
566:												
Royst-----------	0-3	*Very cobbly loam	*GC	*A-6, A-2	0-15	25-55	50-75	45-75	35-65	30-50	30-40	10-15
	3-9	*Very cobbly loam	*GC	*A-6, A-7, A-2	0-15	30-55	50-75	45-70	35-65	30-50	35-45	15-20
	9-25	*Very cobbly clay loam, very cobbly clay	*CH, GC	*A-7, A-2	0-15	25-55	50-75	45-70	40-70	35-70	45-55	25-30
	25-35	*Bedrock			---	---	---	---	---	---	---	---
567:												
Royst-----------	0-3	*Very cobbly loam	*GC	*A-6, A-2	0-15	25-55	50-75	45-75	35-65	30-50	30-40	10-15
	3-9	*Very cobbly loam	*GC	*A-6, A-7, A-2	0-15	30-55	50-75	45-70	35-65	30-50	35-45	15-20
	9-25	*Very cobbly clay loam, very cobbly clay	*CH, GC	*A-7, A-2	0-15	25-55	50-75	45-70	40-70	35-70	45-55	25-30
	25-35	*Bedrock			---	---	---	---	---	---	---	---
Ninemile--------	0-2	*Very cobbly loam	*GC, GC-GM, SC	*A-4, A-6, A-1	0-10	20-40	55-80	40-70	30-55	25-45	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---
568:												
Royst-----------	0-3	*Very stony loam	*GC	*A-6, A-2	25-40	10-15	50-75	45-70	35-65	30-50	30-40	10-15
	3-9	*Very cobbly loam	*GC	*A-6, A-7, A-2	0-15	30-55	50-75	45-70	35-65	30-50	35-45	15-20
	9-25	*Very cobbly clay loam, very cobbly clay	*CH, GC	*A-7, A-2	0-15	25-55	50-75	45-70	40-70	35-70	45-55	25-30
	25-35	*Bedrock			---	---	---	---	---	---	---	---
Nuss------------	0-3	*Gravelly loam	*GC	*A-4, A-6, A-2	0-10	0-10	55-80	50-75	40-65	30-50	25-35	10-15
	3-17	*Clay loam, loam, gravelly loam, cobbly loam	*CL, GC	*A-6, A-2, A-7	0-10	0-20	55-95	50-90	40-90	30-70	30-45	10-25
	17-27	*Bedrock			---	---	---	---	---	---	---	---
569:												
Sagehen---------	0-3	*Very gravelly loam	*GC, GP-GC	*A-2, A-6	0-10	0-15	30-60	25-55	15-50	10-40	30-35	10-15
	3-11	*Very cobbly loam, very gravelly clay loam, very gravelly loam	*GC	*A-6, A-2	0-10	15-30	45-70	40-65	35-60	20-50	35-40	15-20
	11-21	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
570:												
Sagehen	0-3	*Extremely gravelly loam	*GP-GC, GC	*A-2	0-10	0-20	15-40	10-35	5-20	5-15	30-35	10-15
	3-11	*Very cobbly loam, very gravelly clay loam, very gravelly loam	*GC	*A-6, A-2	0-10	15-30	45-70	40-65	35-60	20-50	35-40	15-20
	11-21	*Bedrock			---	---	---	---	---	---	---	---
Raz	0-4	*Very gravelly fine sandy loam	*GC-GM, GC	*A-1, A-2	0	0-25	40-60	35-55	25-45	15-30	20-30	5-10
	4-12	*Sandy clay loam, gravelly loam, clay loam	*SC, CL	*A-6, A-2	0	0-10	65-95	60-90	50-90	25-70	30-40	10-20
	12-17	*Sandy loam, gravelly loam, clay loam	*SC, SC-SM, CL	*A-2, A-1, A-6	0	0-10	65-95	60-90	35-90	15-70	25-40	5-20
	17-30	*Cemented material			---	---	---	---	---	---	---	---
	30-40	*Bedrock			---	---	---	---	---	---	---	---
571:												
Salhouse	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-2, A-4	0	0	95-100	90-100	60-80	20-40	0-20	NP-5
	5-42	*Ashy loamy sand, ashy sand	*SC-SM, SP-SM	*A-2, A-1	0	0	95-100	90-100	50-75	5-30	0-20	NP-5
	42-61	*Ashy silt loam, ashy loam, ashy sandy loam, silt loam, loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	95-100	90-100	55-100	30-100	20-35	5-20
572:												
Salhouse, strongly alkaline	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-2, A-4	0	0	95-100	90-100	60-80	20-40	0-20	NP-5
	5-42	*Ashy loamy sand, ashy sand	*SC-SM, SP-SM	*A-2, A-1	0	0	95-100	90-100	50-75	5-30	0-20	NP-5
	42-61	*Ashy silt loam, ashy loam, ashy sandy loam, silt loam, loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	95-100	90-100	55-100	30-100	20-35	5-20
573:												
Salhouse	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-2, A-4	0	0	95-100	90-100	60-80	20-40	0-20	NP-5
	5-42	*Ashy loamy sand, ashy sand	*SC-SM, SP-SM	*A-2, A-1	0	0	95-100	90-100	50-75	5-30	0-20	NP-5
	42-61	*Ashy silt loam, ashy loam, ashy sandy loam, silt loam, loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	95-100	90-100	55-100	30-100	20-35	5-20

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
573:												
Tonor-----------	0-3	*Ashy silt loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	90-100	70-100	20-30	5-15
	3-11	*Ashy loam, ashy silt loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	85-100	60-100	20-30	5-15
	11-43	*Ashy sandy loam, ashy loam, ashy silt loam	*SC, CL	*A-2, A-6	0	0	100	100	60-100	30-100	25-35	10-20
	43-60	*Very paragravelly ashy silt loam, very parachannery ashy silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-100	25-35	10-20
574:												
Seharney--------	0-3	*Very stony sandy loam	*SC-SM, SC, SP-SC	*A-1, A-2	30-45	10-15	60-75	55-70	35-55	10-30	20-30	5-10
	3-11	*Very cobbly loam, very stony sandy loam	*SC, SP-SC, CL	*A-6, A-2	10-30	25-45	60-75	55-70	35-65	10-55	30-35	10-20
	11-13	*Cemented material			---	---	---	---	---	---	---	---
	13-23	*Bedrock			---	---	---	---	---	---	---	---
575:												
Seharney--------	0-3	*Gravelly sandy loam	*SC-SM, SC	*A-1, A-2	0	0-15	65-80	60-75	35-50	20-30	20-30	5-10
	3-11	*Very cobbly loam, very stony sandy loam	*SC, SP-SC, CL	*A-6, A-2	10-30	25-45	60-75	55-70	35-65	10-55	30-35	10-20
	11-13	*Cemented material			---	---	---	---	---	---	---	---
	13-23	*Bedrock			---	---	---	---	---	---	---	---
Rabbithills-----	0-3	*Gravelly sandy loam	*SC-SM, SC, GM	*A-2, A-1	0	0	55-80	50-75	35-50	20-30	10-25	NP-10
	3-12	*Sandy loam, fine sandy loam, loam	*SC, SM, CL	*A-4, A-1	0	0	80-100	75-100	35-85	15-70	15-25	NP-10
	12-22	*Cemented fine sandy loam, cemented loamy fine sand	*CL, SM	*A-4, A-2	0	0	90-100	85-100	65-85	35-55	15-25	NP-10
	22-40	*Loam, gravelly sandy loam, gravelly loamy sand, sandy loam, clay loam, loamy sand	*SC, CL, SW-SM	*A-4, A-6, A-1	0	0	60-100	55-100	15-70	12-65	0-30	NP-20
	40-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
575:												
Enko------------	0-2	*Sandy loam	*SC-SM, SM	*A-2, A-4	0	0	80-100	75-100	50-70	30-40	15-30	NP-10
	2-11	*Sandy loam, fine sandy loam, loam	*SC-SM, SC	*A-2, A-1	0	0	80-100	75-100	40-60	20-30	15-30	5-10
	11-35	*Sandy loam, loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC-SM, CL	*A-4, A-2	0	0	65-100	60-100	55-75	25-75	20-30	5-10
	35-60	*Paragravelly sandy loam, sandy loam, fine sandy loam, gravelly sandy loam, very fine sandy loam	*SC, SP-SC	*A-2, A-1, A-4	0	0	60-100	55-100	30-50	10-50	20-30	5-10
576:												
Senra-----------	0-3	*Ashy fine sandy loam	*SC, SC-SM	*A-4, A-2	0	0-10	80-95	75-90	55-75	30-50	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
577:												
Senra-----------	0-3	*Ashy fine sandy loam	*SC, SC-SM	*A-4, A-2	0	0-10	80-95	75-90	55-75	30-50	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
578:												
Senra-----------	0-3	*Ashy fine sandy loam	*SC, SC-SM	*A-4, A-2	0	0-10	80-95	75-90	55-75	30-50	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
578:												
Borobey	0-4	*Ashy fine sandy loam	*SM, SP-SM, SC-SM	*A-2, A-1	0	0	90-100	85-100	45-70	10-25	10-15	NP-5
	4-12	*Ashy loamy sand, gravelly ashy sandy loam, gravelly ashy loamy sand, ashy sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	30-95	10-75	10-15	NP-5
	12-50	*Ashy loamy fine sand, gravelly ashy sandy loam, ashy sandy loam, ashy fine sandy loam	*SM, CL-ML, ML, SP-SM	*A-2, A-1, A-4	0	0-10	75-100	55-100	45-95	10-55	10-15	NP-5
	50-68	*Ashy loamy sand, very gravelly ashy loamy coarse sand, ashy gravelly loamy sand, ashy sandy loam, very gravelly ashy sandy loam	*SM, CL-ML, SW-SM, ML	*A-2, A-1, A-4	0	0	60-100	35-100	10-95	5-55	10-15	NP-5
579:												
Senra	0-3	*Ashy very fine sandy loam	*CL, SC-SM	*A-4	0	0-10	80-95	75-90	65-85	45-55	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
Dunres	0-4	*Cobbly ashy very fine sand	*SM, ML	*A-4, A-2-4	0-10	15-45	70-95	65-85	45-80	35-55	0-15	NP-5
	4-8	*Ashy sandy clay loam, cobbly ashy sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0-30	85-100	80-100	50-80	20-55	30-45	15-25
	8-19	*Clay, cobbly clay	*CH, SC	*A-7	0	0-30	85-100	80-100	60-100	45-95	50-65	30-40
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-56	*Cemented material			---	---	---	---	---	---	---	---
	56-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
580:												
Senra-----------	0-3	*Ashy fine sandy loam	*SC, SC-SM	*A-4, A-2	0	0-10	80-95	75-90	55-75	30-50	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
Goodtack--------	0-3	*Ashy loamy very fine sand	*ML, SM	*A-4, A-2	0	0	95-100	90-100	80-95	35-60	20-30	NP-5
	3-7	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	7-19	*Ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	55-90	30-55	30-40	10-20
	19-46	*Cemented material			---	---	---	---	---	---	---	---
	46-56	*Bedrock			---	---	---	---	---	---	---	---
581:												
Senra-----------	0-3	*Ashy sandy clay loam	*SC	*A-6, A-2	0	0-10	80-95	75-90	65-80	30-50	35-45	15-25
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
Goodtack--------	0-3	*Ashy loam	*CL, CL-ML	*A-6, A-4	0	0	90-100	85-100	65-95	50-75	25-40	5-15
	3-7	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	7-19	*Ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	55-90	30-55	30-40	10-20
	19-46	*Cemented material			---	---	---	---	---	---	---	---
	46-56	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
582:												
Senra-----------	0-3	*Cobbly ashy fine sandy loam	*SC-SM, SM	*A-4, A-2	0	15-30	70-95	65-90	50-65	35-45	20-35	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
Goodtack--------	0-3	*Gravelly ashy loamy fine sand	*SM	*A-1	0	0-10	60-85	55-75	30-50	15-20	20-30	NP-5
	3-7	*Ashy fine sandy loam, ashy sandy loam	*CL-ML, SC-SM	*A-4, A-2	0	0	95-100	90-100	55-80	30-55	20-30	5-10
	7-19	*Ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	55-90	30-55	30-40	10-20
	19-46	*Cemented material			---	---	---	---	---	---	---	---
	46-56	*Bedrock			---	---	---	---	---	---	---	---
Suckerflat------	0-8	*Cobbly ashy fine sandy loam	*SM, SC-SM	*A-4	0-10	15-25	85-95	80-90	60-75	40-50	20-35	5-10
	8-18	*Cobbly ashy loam, ashy loamy sand, ashy sandy loam	*CL, SC-SM, ML	*A-4, A-1	0-10	0-15	80-100	75-100	40-80	25-70	20-35	5-10
	18-28	*Bedrock			---	---	---	---	---	---	---	---
583:												
Senra-----------	0-3	*Gravelly ashy very fine sandy loam	*SC, GC-GM	*A-4, A-2	0-15	0-10	60-80	55-75	50-65	30-45	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
583:												
Hayespring------	0-3	*Ashy fine sandy loam	*ML, SM, CL-ML	*A-4, A-2	0	0	90-100	85-100	55-85	30-55	25-35	5-10
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---
584:												
Senra, droughty	0-3	*Ashy fine sandy loam	*SC, SC-SM	*A-4, A-2	0	0-10	80-95	75-90	55-75	30-50	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
Hayespring, droughty-------	0-3	*Gravelly ashy very fine sandy loam	*GM, SM, GC-GM	*A-4, A-2	0-10	0-15	65-80	60-75	50-65	30-45	25-35	5-10
	3-10	*Stony ashy fine sandy loam, ashy fine sandy loam	*SM, SC-SM	*A-4, A-2	10-15	0-15	85-95	80-90	55-75	30-50	25-35	5-10
	10-17	*Cobbly ashy clay loam, ashy sandy clay loam, ashy clay loam, cobbly ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0-10	10-30	85-100	80-100	65-95	30-80	30-45	15-25
	17-24	*Ashy clay loam	*CL	*A-7, A-6	0	10-15	95-100	90-100	80-95	65-80	40-45	20-25
	24-44	*Cemented material			---	---	---	---	---	---	---	---
	44-54	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
585:												
Senra-----------	0-3	*Gravelly ashy fine sandy loam	*SC, SC-SM	*A-4, A-2	0	0-10	65-80	65-75	45-60	30-40	20-30	5-10
	3-10	*Ashy loam	*CL, CL-ML	*A-4, A-6	0	0-10	80-95	75-90	65-85	50-70	20-35	5-15
	10-15	*Ashy sandy clay loam	*SC, CL	*A-6, A-2	0	0-10	95-100	90-100	70-90	30-55	30-40	15-20
	15-19	*Channery ashy clay loam, ashy sandy clay loam	*CL, SC	*A-6, A-7, A-2	0	0-10	90-100	85-100	70-100	30-80	35-45	20-25
	19-32	*Cemented material			---	---	---	---	---	---	---	---
	32-42	*Bedrock			---	---	---	---	---	---	---	---
Moonbeam--------	0-3	*Cobbly ashy loam	*CL, GC-GM	*A-4, A-6	0-10	15-30	70-95	65-90	60-75	40-60	25-35	5-15
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
586:												
Shanahan--------	0-4	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	4-9	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	9-38	*Ashy coarse sand, very paragravelly ashy coarse sand, paragravelly ashy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-25	NP-10
	38-60	*Gravelly sandy loam, sandy loam	*SM, GC-GM, SC-SM	*A-2, A-1, A-4	0	0	55-100	50-90	35-70	20-40	20-40	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
587:												
Shanahan, low landscape position-------	0-4	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	4-9	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	9-38	*Ashy coarse sand, very paragravelly ashy coarse sand, paragravelly ashy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-25	NP-10
	38-60	*Gravelly sandy loam, sandy loam	*SM, GC-GM, SC-SM	*A-2, A-1, A-4	0	0	55-100	50-90	35-70	20-40	20-40	5-10
588:												
Shanahan, north	0-4	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	4-9	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	9-38	*Ashy coarse sand, very paragravelly ashy coarse sand, paragravelly ashy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-25	NP-10
	38-60	*Gravelly sandy loam, sandy loam	*SM, GC-GM, SC-SM	*A-2, A-1, A-4	0	0	55-100	50-90	35-70	20-40	20-40	5-10
Shukash---------	0-3	*Paragravelly ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	3-10	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	10-37	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-20	NP-5
	37-60	*Very stony sandy loam, very stony loam, extremely stony sandy loam, extremely stony loam	*SM, CL, GP-GC	*A-4, A-1	35-60	0-35	30-90	25-85	20-65	10-60	20-30	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
589:												
Shukash---------	0-3	*Paragravelly ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	3-10	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	10-37	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-20	NP-5
	37-60	*Very stony sandy loam, very stony loam, extremely stony sandy loam, extremely stony loam	*SM, CL, GP-GC	*A-4, A-1	35-60	0-35	30-90	25-85	20-65	10-60	20-30	5-10
590:												
Shukash, cool---	0-3	*Paragravelly ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	3-10	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	10-37	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-20	NP-5
	37-60	*Very stony sandy loam, very stony loam, extremely stony sandy loam, extremely stony loam	*SM, CL, GP-GC	*A-4, A-1	35-60	0-35	30-90	25-85	20-65	10-60	20-30	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
591:												
Shukash, north--	0-3	*Paragravelly ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	3-10	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	10-37	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-20	NP-5
	37-60	*Very stony sandy loam, very stony loam, extremely stony sandy loam, extremely stony loam	*SM, CL, GP-GC	*A-4, A-1	35-60	0-35	30-90	25-85	20-65	10-60	20-30	5-10
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
592:												
Shukash, south--	0-3	*Paragravelly ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	3-10	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	10-37	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-20	NP-5
	37-60	*Very stony sandy loam, very stony loam, extremely stony sandy loam, extremely stony loam	*SM, CL, GP-GC	*A-4, A-1	35-60	0-35	30-90	25-85	20-65	10-60	20-30	5-10
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
593:												
Shukash---------	0-3	*Paragravelly ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	3-10	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	10-37	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-20	NP-5
	37-60	*Very stony sandy loam, very stony loam, extremely stony sandy loam, extremely stony loam	*SM, CL, GP-GC	*A-4, A-1	35-60	0-35	30-90	25-85	20-65	10-60	20-30	5-10
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
594:												
Shukash---------	0-3	*Paragravelly ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	3-10	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	10-37	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-20	NP-5
	37-60	*Very stony sandy loam, very stony loam, extremely stony sandy loam, extremely stony loam	*SM, CL, GP-GC	*A-4, A-1	35-60	0-35	30-90	25-85	20-65	10-60	20-30	5-10
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
595:												
Shukash---------	0-3	*Paragravelly ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	3-10	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	10-37	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-20	NP-5
	37-60	*Very stony sandy loam, very stony loam, extremely stony sandy loam, extremely stony loam	*SM, CL, GP-GC	*A-4, A-1	35-60	0-35	30-90	25-85	20-65	10-60	20-30	5-10
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
596:												
Shukash---------	0-3	*Paragravelly ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	3-10	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	10-37	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-20	NP-5
	37-60	*Very stony sandy loam, very stony loam, extremely stony sandy loam, extremely stony loam	*SM, CL, GP-GC	*A-4, A-1	35-60	0-35	30-90	25-85	20-65	10-60	20-30	5-10
Shanahan--------	0-4	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	4-9	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	9-38	*Ashy coarse sand, very paragravelly ashy coarse sand, paragravelly ashy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-25	NP-10
	38-60	*Gravelly sandy loam, sandy loam	*SM, GC-GM, SC-SM	*A-2, A-1, A-4	0	0	55-100	50-90	35-70	20-40	20-40	5-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
597:												
Shukash----------	0-3	*Paragravelly ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	3-10	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	10-37	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-20	NP-5
	37-60	*Very stony sandy loam, very stony loam, extremely stony sandy loam, extremely stony loam	*SM, CL, GP-GC	*A-4, A-1	35-60	0-35	30-90	25-85	20-65	10-60	20-30	5-10
Wanoga-----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	60-80	55-75	30-50	10-20	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop-----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
598:												
Sisters---------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-10	*Paragravelly ashy loamy sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-15	NP-5
	10-17	*Ashy loamy sand, ashy sand, paragravelly ashy sand, paragravelly ashy loamy sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-70	5-30	10-15	NP-5
	17-33	*Paragravelly ashy sand, ashy sand, ashy loamy sand, paragravelly ashy loamy sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-70	5-30	10-15	NP-5
	33-47	*Clay loam, gravelly clay loam, loam, gravelly loam	*CL-ML, GC-GM, CL	*A-4, A-2, A-6	0	0	65-100	60-100	55-90	35-80	20-40	5-20
	47-51	*Bedrock			---	---	---	---	---	---	---	---
Wanoga----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	60-80	55-75	30-50	10-20	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---
599:												
Sliptrack-------	0-3	*Ashy very fine sandy loam	*CL, ML, CL-ML	*A-4	0	0	95-100	90-100	85-95	50-65	25-35	5-10
	3-11	*Ashy fine sandy loam	*CL, SC-SM, ML	*A-4, A-2	0	0-10	90-100	85-100	55-85	30-55	25-35	5-10
	11-16	*Ashy sandy clay loam	*SC, CH	*A-6, A-2, A-7	0	0-10	90-100	85-100	65-90	30-55	35-50	15-25
	16-22	*Ashy clay loam, ashy sandy clay loam	*CL, CH, SC	*A-7, A-2	0	0-10	90-100	85-100	65-100	30-80	40-50	20-25
	22-60	*Cemented material			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
599:												
Moonbeam--------	0-3	*Cobbly ashy fine sandy loam	*SC-SM, SC, SM	*A-4, A-2	0	15-40	70-85	65-80	50-65	35-45	15-30	NP-10
	3-8	*Gravelly ashy sandy clay loam, ashy sandy clay loam, ashy fine sandy loam, cobbly ashy fine sandy loam	*SC	*A-2, A-6	0-10	0-15	70-95	65-90	40-80	25-50	30-40	10-20
	8-14	*Clay, clay loam	*CH, CL	*A-7	0	0-15	80-100	75-100	70-100	55-95	45-65	25-40
	14-18	*Clay, cobbly clay	*CH	*A-7	0	0-25	90-100	85-100	70-100	60-95	50-65	30-40
	18-27	*Cemented material			---	---	---	---	---	---	---	---
	27-37	*Bedrock			---	---	---	---	---	---	---	---
600:												
Sliptrack-------	0-3	*Cobbly ashy fine sandy loam	*SC, SM, SC-SM	*A-4, A-2	0-10	10-15	80-95	75-90	50-75	30-50	25-35	5-10
	3-11	*Ashy fine sandy loam	*CL, SC-SM, ML	*A-4, A-2	0	0-10	90-100	85-100	55-85	30-55	25-35	5-10
	11-16	*Ashy sandy clay loam	*SC, CH	*A-6, A-2, A-7	0	0-10	90-100	85-100	65-90	30-55	35-50	15-25
	16-22	*Ashy clay loam, ashy sandy clay loam	*CL, CH, SC	*A-7, A-2	0	0-10	90-100	85-100	65-100	30-80	40-50	20-25
	22-60	*Cemented material			---	---	---	---	---	---	---	---
Oatmanflat------	0-3	*Ashy loam	*SC, SC-SM, ML	*A-4, A-2	0	0	90-100	85-100	60-85	30-55	25-35	5-10
	3-12	*Ashy sandy clay loam, ashy sandy loam	*SC, SC-SM	*A-4, A-2	0	0	90-100	85-100	45-75	30-45	20-35	5-15
	12-28	*Ashy coarse sandy loam, ashy sandy loam	*SC, SC-SM	*A-2	0	0	90-100	85-100	45-55	25-30	20-30	5-10
	28-44	*Ashy clay loam, ashy fine sandy loam, ashy sandy clay loam, ashy loam	*CL, SC	*A-6, A-2, A-7	0	0	90-100	85-100	55-80	30-65	30-45	10-25
	44-53	*Gravelly ashy sandy clay loam, ashy clay loam, ashy fine sandy loam, ashy loam	*CL	*A-6, A-7	0	0-10	65-100	60-100	55-90	50-75	30-45	10-25
	53-64	*Cemented material			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
601:												
Snakepit--------	0-3	*Loamy sand	*SM, SW-SM	*A-1, A-2	0	0	80-100	75-100	35-70	10-30	15-25	NP-5
	3-19	*Loamy sand, cobbly loamy sand	*SM	*A-2, A-1	0	0-15	85-100	80-100	40-70	15-30	20-25	NP-5
	19-30	*Loamy sand, sandy loam	*SM	*A-4, A-1	0	0	80-100	75-100	40-70	25-50	20-25	NP-5
	30-33	*Sandy loam, loamy fine sand, loamy sand	*SC-SM, SM	*A-4, A-1	0	0	80-100	75-100	40-70	25-50	20-25	NP-5
	33-42	*Cemented material			---	---	---	---	---	---	---	---
	42-63	*Loamy sand, sandy loam	*SM, SW-SM	*A-2, A-1, A-4	0	0-10	80-100	75-100	35-70	10-40	0-25	NP-5
602:												
Southcat--------	0-4	*Gravelly loamy sand	*SM, SC-SM, SW-SM	*A-1, A-2	0	0	65-80	60-75	30-60	10-25	15-20	NP-5
	4-10	*Sandy loam, fine sandy loam	*SC, CL, SM	*A-2, A-1, A-4	0	0	80-100	75-100	40-85	20-55	15-30	NP-10
	10-26	*Gravelly sandy loam, fine sand, sand, gravelly loamy sand	*SP-SC, SC-SM, SP-SM	*A-2, A-1, A-4	0	0	60-100	55-100	45-80	5-40	0-25	NP-5
	26-62	*Sand, fine sand, gravelly sandy loam, loamy sand	*SP-SM, SM	*A-3, A-4, A-1	0	0	60-100	55-100	45-80	5-40	0-15	NP
603:												
Southcat--------	0-4	*Gravelly loamy sand	*SM, SC-SM, SW-SM	*A-1, A-2	0	0	65-80	60-75	30-60	10-25	15-20	NP-5
	4-10	*Sandy loam, fine sandy loam	*SC, CL, SM	*A-2, A-1, A-4	0	0	80-100	75-100	40-85	20-55	15-30	NP-10
	10-26	*Gravelly sandy loam, fine sand, sand, gravelly loamy sand	*SP-SC, SC-SM, SP-SM	*A-2, A-1, A-4	0	0	60-100	55-100	45-80	5-40	0-25	NP-5
	26-62	*Sand, fine sand, gravelly sandy loam, loamy sand	*SP-SM, SM	*A-3, A-4, A-1	0	0	60-100	55-100	45-80	5-40	0-15	NP
Kewake----------	0-4	*Ashy loamy fine sand	*SM, SC-SM	*A-2	0	0	100	100	70-90	15-30	10-20	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
604:												
Southcat--------	0-4	*Fine sand	*SM, SC-SM	*A-2	0	0	95-100	90-100	55-80	20-35	0-20	NP-5
	4-10	*Sandy loam, fine sandy loam	*SC, CL, SM	*A-2, A-1, A-4	0	0	80-100	75-100	40-85	20-55	15-30	NP-10
	10-26	*Gravelly sandy loam, fine sand, sand, gravelly loamy sand	*SP-SC, SC-SM, SP-SM	*A-2, A-1, A-4	0	0	60-100	55-100	45-80	5-40	0-25	NP-5
	26-62	*Sand, fine sand, gravelly sandy loam, loamy sand	*SP-SM, SM	*A-3, A-4, A-1	0	0	60-100	55-100	45-80	5-40	0-15	NP
Playas----------	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
605:												
Spiderhole, very cobbly loamy sand surface--------	0-3	*Very cobbly loamy sand	*SC-SM, GP-GM	*A-1, A-2	0	25-40	45-70	40-70	25-60	10-25	15-25	NP-5
	3-6	*Gravelly loamy sand, very cobbly sandy loam, gravelly sandy loam, very cobbly loamy sand	*SC-SM, GC-GM, GC	*A-2, A-1	0	10-40	55-70	50-65	30-60	15-35	20-30	5-10
	6-10	*Very cobbly sandy clay loam, cobbly sandy clay loam, very gravelly sandy clay loam, very cobbly sandy loam	*CL, GC	*A-6, A-2	0	20-30	55-70	50-65	35-60	20-55	25-40	10-20
	10-21	*Cemented material			---	---	---	---	---	---	---	---
	21-24	*Loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0-10	90-100	85-100	40-75	15-30	15-25	NP-5
	24-34	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
605: Spiderhole, very gravelly loamy sand surface	0-3	*Very gravelly loamy sand	*GP-GM, GC-GM	*A-1	0	0-25	45-55	40-50	15-35	5-15	15-20	NP-5
	3-6	*Gravelly loamy sand, very cobbly sandy loam, gravelly sandy loam, very cobbly loamy sand	*SC-SM, GC-GM, GC	*A-2, A-1	0	10-40	55-70	50-65	30-60	15-35	20-30	5-10
	6-10	*Very cobbly sandy clay loam, cobbly sandy clay loam, very gravelly sandy clay loam, very cobbly sandy loam	*CL, GC	*A-6, A-2	0	20-30	55-70	50-65	35-60	20-55	25-40	10-20
	10-21	*Cemented material			---	---	---	---	---	---	---	---
	21-24	*Loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0-10	90-100	85-100	40-75	15-30	15-25	NP-5
	24-34	*Bedrock			---	---	---	---	---	---	---	---
606: Stampede	0-2	*Gravelly fine sandy loam	*SC	*A-6, A-2	0-10	0-10	70-90	65-85	40-65	25-45	30-35	10-15
	2-9	*Sandy clay loam, gravelly clay loam	*SC, CL	*A-6, A-2, A-7	0	0-10	70-95	65-90	50-90	25-70	30-45	15-25
	9-22	*Clay loam, cobbly clay loam, clay	*CH, CL	*A-7	0	0-25	85-95	80-90	70-90	55-85	45-65	25-35
	22-32	*Cemented material			---	---	---	---	---	---	---	---
607: Steiger	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-4	*Ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	4-12	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	12-45	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-5	NP
	45-60	*Stony sandy loam, sandy loam, loam, gravelly loam	*SC-SM, SM, CL	*A-2, A-1, A-4	0-40	0-10	70-100	65-100	40-80	20-70	20-30	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
608:												
Steiger, cool---	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-4	*Ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	4-12	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	12-45	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-5	NP
	45-60	*Stony sandy loam, sandy loam, loam, gravelly loam	*SC-SM, SM, CL	*A-2, A-1, A-4	0-40	0-10	70-100	65-100	40-80	20-70	20-30	NP-10
609:												
Steiger---------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-4	*Ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	4-12	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	12-45	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-5	NP
	45-60	*Stony sandy loam, sandy loam, loam, gravelly loam	*SC-SM, SM, CL	*A-2, A-1, A-4	0-40	0-10	70-100	65-100	40-80	20-70	20-30	NP-10
610:												
Steiger, north--	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-4	*Ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	4-12	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	12-45	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-5	NP
	45-60	*Stony sandy loam, sandy loam, loam, gravelly loam	*SC-SM, SM, CL	*A-2, A-1, A-4	0-40	0-10	70-100	65-100	40-80	20-70	20-30	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
610:												
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
611:												
Steiger, south--	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-4	*Ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	4-12	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	12-45	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-5	NP
	45-60	*Stony sandy loam, sandy loam, loam, gravelly loam	*SC-SM, SM, CL	*A-2, A-1, A-4	0-40	0-10	70-100	65-100	40-80	20-70	20-30	NP-10
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
612:												
Suckerflat------	0-8	*Ashy loamy fine sand	*ML, SM	*A-4, A-2	0	0	90-100	85-100	40-80	30-60	20-30	NP-5
	8-18	*Cobbly ashy loam, ashy loamy sand, ashy sandy loam	*CL, SC-SM, ML	*A-4, A-1	0-10	0-15	80-100	75-100	40-80	25-70	20-35	5-10
	18-28	*Bedrock			---	---	---	---	---	---	---	---
613:												
Suckerflat------	0-8	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	40-75	15-30	20-30	NP-5
	8-18	*Cobbly ashy loam, ashy loamy sand, ashy sandy loam	*CL, SC-SM, ML	*A-4, A-1	0-10	0-15	80-100	75-100	40-80	25-70	20-35	5-10
	18-28	*Bedrock			---	---	---	---	---	---	---	---
614:												
Suckerflat------	0-8	*Cobbly ashy loam	*CL, ML, SC-SM	*A-4	0-10	15-25	85-95	80-90	60-85	40-70	25-35	5-10
	8-18	*Cobbly ashy loam, ashy loamy sand, ashy sandy loam	*CL, SC-SM, ML	*A-4, A-1	0-10	0-15	80-100	75-100	40-80	25-70	20-35	5-10
	18-28	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
615:												
Suckerflat, north	0-8	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	40-75	15-30	20-30	NP-5
	8-18	*Cobbly ashy loam, ashy loamy sand, ashy sandy loam	*CL, SC-SM, ML	*A-4, A-1	0-10	0-15	80-100	75-100	40-80	25-70	20-35	5-10
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0-60	*Bedrock			---	---	---	---	---	---	---	---
616:												
Suckerflat, south	0-8	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	40-75	15-30	20-30	NP-5
	8-18	*Cobbly ashy loam, ashy loamy sand, ashy sandy loam	*CL, SC-SM, ML	*A-4, A-1	0-10	0-15	80-100	75-100	40-80	25-70	20-35	5-10
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0-60	*Bedrock			---	---	---	---	---	---	---	---
617:												
Suckerflat	0-8	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	40-75	15-30	20-30	NP-5
	8-18	*Cobbly ashy loam, ashy loamy sand, ashy sandy loam	*CL, SC-SM, ML	*A-4, A-1	0-10	0-15	80-100	75-100	40-80	25-70	20-35	5-10
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0-60	*Bedrock			---	---	---	---	---	---	---	---
618:												
Suckerflat	0-8	*Cobbly ashy loam	*CL, ML, SC-SM	*A-4	0-10	15-25	85-95	80-90	60-85	40-70	25-35	5-10
	8-18	*Cobbly ashy loam, ashy loamy sand, ashy sandy loam	*CL, SC-SM, ML	*A-4, A-1	0-10	0-15	80-100	75-100	40-80	25-70	20-35	5-10
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Weglike	0-3	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	50-75	15-30	20-30	NP-5
	3-12	*Ashy sandy loam, ashy loamy sand	*SC-SM, SM	*A-2, A-1, A-4	0	0	90-100	85-100	40-75	15-40	20-30	NP-5
	12-22	*Gravelly loam, gravelly sandy loam, gravelly clay loam	*GC, SC, CL	*A-6, A-2	0	0-15	60-80	55-75	30-70	15-55	25-40	10-20
	22-23	*Extremely gravelly loam, very gravelly clay loam	*GP-GC, GC	*A-2, A-6	0	0-30	30-55	25-50	15-45	10-40	25-40	10-20
	23-33	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
619:												
Silverash-------	0-2	*Ashy fine sandy loam	*CL, SC-SM	*A-4	0	0	100	100	70-85	40-55	20-30	5-10
	2-8	*Ashy loam, ashy silt loam	*CL, CL-ML	*A-4	0	0	100	100	85-95	60-90	20-30	5-10
	8-21	*Clay, clay loam, silty clay loam	*CH, SC	*A-7	0	0	100	100	80-95	40-70	45-60	25-40
	21-62	*Sandy clay loam, very fine sandy loam, clay loam	*CL, SC	*A-6, A-4, A-7	0	0	100	100	80-95	40-70	30-45	10-25
620:												
Swalesilver-----	0-4	*Loam	*CL	*A-6, A-4	0	0	100	100	85-95	60-75	30-40	10-20
	4-16	*Clay, silty clay, clay loam	*CH, CL	*A-7	0	0	100	100	90-100	70-95	45-75	25-50
	16-60	*Loam, silt loam, clay loam, silty clay loam	*CL, CH	*A-6, A-7	0	0	100	100	85-100	60-95	35-50	15-30
621:												
Swalesilver-----	0-4	*Silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-90	25-40	10-20
	4-16	*Clay, silty clay, clay loam	*CH, CL	*A-7	0	0	100	100	90-100	70-95	45-75	25-50
	16-60	*Loam, silt loam, clay loam, silty clay loam	*CL, CH	*A-6, A-7	0	0	100	100	85-100	60-95	35-50	15-30
622:												
Teguro----------	0-2	*Cobbly loam	*ML, SC-SM	*A-4	0	15-25	75-95	70-90	60-85	40-70	25-35	5-10
	2-8	*Cobbly loam	*ML, SC-SM	*A-4	0	15-25	70-95	70-90	60-85	40-70	25-35	5-10
	8-15	*Clay loam, gravelly loam, gravelly clay loam, cobbly clay loam	*CL, CH, SC	*A-7, A-2	0	10-30	65-95	60-90	40-90	30-70	35-50	15-25
	15-25	*Bedrock			---	---	---	---	---	---	---	---
623:												
Teguro----------	0-2	*Gravelly loam	*SM, GC-GM	*A-4	0	0-10	65-80	60-75	55-65	35-50	25-35	5-10
	2-8	*Cobbly loam	*ML, SC-SM	*A-4	0	15-25	70-95	70-90	60-85	40-70	25-35	5-10
	8-15	*Clay loam, gravelly loam, gravelly clay loam, cobbly clay loam	*CL, CH, SC	*A-7, A-2	0	10-30	65-95	60-90	40-90	30-70	35-50	15-25
	15-25	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
624:												
Thompsoncabin, extremely bouldery-------	0-3	*Extremely stony sandy loam	*GW-GC, GC, GP-GC	*A-1, A-2	30-45	20-30	25-55	20-50	10-30	5-15	20-30	5-10
	3-14	*Extremely cobbly clay loam, extremely cobbly sandy clay loam	*GC, GP-GC	*A-2	0-15	30-45	25-50	20-45	15-40	5-35	30-40	15-20
	14-24	*Bedrock			---	---	---	---	---	---	---	---
Thompsoncabin---	0-3	*Extremely cobbly fine sandy loam	*GC-GM, GC, GP-GC	*A-1, A-2	10-25	45-65	25-50	20-45	10-20	10-15	20-30	5-10
	3-14	*Extremely cobbly clay loam, extremely cobbly sandy clay loam	*GC, GP-GC	*A-2	0-15	30-45	25-50	20-45	15-40	5-35	30-40	15-20
	14-24	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
625:												
Thompsoncabin---	0-3	*Very stony sandy loam	*SC-SM, SC, GC-GM	*A-1, A-2	25-30	10-30	45-75	40-70	20-35	15-20	20-30	5-10
	3-14	*Extremely cobbly clay loam, extremely cobbly sandy clay loam	*GC, GP-GC	*A-2	0-15	30-45	25-50	20-45	15-40	5-35	30-40	15-20
	14-24	*Bedrock			---	---	---	---	---	---	---	---
Wildhill--------	0-2	*Very cobbly loam	*GC, GC-GM	*A-4, A-6, A-1	0-10	20-40	50-70	45-65	35-55	25-45	20-35	5-15
	2-9	*Very cobbly fine sandy loam	*GC, GC-GM	*A-2, A-1, A-4	0-10	25-40	55-75	50-70	35-60	20-40	25-30	5-10
	9-14	*Very cobbly sandy clay loam, extremely stony loam, very cobbly clay loam, extremely cobbly clay loam	*GC, CL	*A-2, A-7	0-45	25-50	45-80	40-70	30-65	20-60	30-45	10-25
	14-25	*Very cobbly sandy clay loam, very cobbly clay loam, extremely gravelly loam, extremely cobbly loam, extremely stony loam	*GC, GW-GC, CL	*A-2, A-6	10-30	15-45	30-75	25-70	15-60	5-55	30-40	10-20
	25-35	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	Percentage passing sieve number-- 10	Percentage passing sieve number-- 40	Percentage passing sieve number-- 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
626: Thornlake-------	0-7	*Ashy sandy loam	*SC-SM, SC	*A-2, A-4	0	0	100	100	60-70	30-40	20-30	5-10
	7-25	*Ashy loam, ashy silt loam	*CL	*A-6, A-4	0	0	100	100	50-100	50-100	25-35	10-20
	25-61	*Ashy sandy loam, ashy loamy sand, ashy silt loam, ashy loam	*SC-SM, SM, CL	*A-2, A-1, A-6	0	0	100	100	50-100	15-100	15-35	NP-15
627: Thornlake, nonsodic surface--------	0-7	*Ashy sandy loam	*SC-SM, SC	*A-2, A-4	0	0	100	100	60-70	30-40	20-30	5-10
	7-25	*Ashy loam, ashy silt loam	*CL	*A-6, A-4	0	0	100	100	50-100	50-100	25-35	10-20
	25-61	*Ashy sandy loam, ashy loamy sand, ashy silt loam, ashy loam	*SC-SM, SM, CL	*A-2, A-1, A-6	0	0	100	100	50-100	15-100	15-35	NP-15
628: Thornlake, strongly alkaline-------	0-7	*Ashy sandy loam	*SC-SM, SC	*A-2, A-4	0	0	100	100	60-70	30-40	20-30	5-10
	7-25	*Ashy loam, ashy silt loam	*CL	*A-6, A-4	0	0	100	100	50-100	50-100	25-35	10-20
	25-61	*Ashy sandy loam, ashy loamy sand, ashy silt loam, ashy loam	*SC-SM, SM, CL	*A-2, A-1, A-6	0	0	100	100	50-100	15-100	15-35	NP-15
Thornlake, moderately alkaline-------	0-7	*Ashy silt loam	*CL-ML, ML	*A-4	0	0	100	100	90-100	70-90	20-35	5-15
	7-25	*Ashy loam, ashy silt loam	*CL	*A-6, A-4	0	0	100	100	50-100	50-100	25-35	10-20
	25-61	*Ashy sandy loam, ashy loamy sand, ashy silt loam, ashy loam	*SC-SM, SM, CL	*A-2, A-1, A-6	0	0	100	100	50-100	15-100	15-35	NP-15
629: Thornlake-------	0-5	*Gravelly ashy loamy sand	*SM, SP-SM, SC-SM	*A-1	0	0	55-70	50-65	30-50	10-20	15-25	NP-5
	5-59	*Gravelly ashy sandy loam, gravelly ashy loamy sand	*SC-SM, GM, SC	*A-1, A-2	0	0	55-75	50-70	30-60	15-30	15-30	NP-10
	59-65	*Ashy fine sandy loam, ashy loamy fine sand	*SC-SM, SC, SM	*A-2, A-4	0	0	75-100	70-100	55-80	20-45	15-25	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
629:												
Catlow----------	0-3	*Gravelly loamy sand	*SM, SW-SM	*A-1, A-2	0-3	0-5	65-85	55-75	25-55	10-20	5-25	NP-5
	3-21	*Extremely cobbly fine sandy loam, very stony sandy clay loam, very gravelly sandy clay loam, gravelly sandy loam, very gravelly sandy loam	*SC, SW-SC	*A-2, A-6, A-1	0-15	10-30	55-85	20-75	10-60	5-40	20-35	5-15
	21-30	*Extremely gravelly sandy loam, very cobbly sandy loam, extremely cobbly loamy coarse sand, very gravelly sandy loam, very cobbly loamy sand	*GP-GC, GC, GP	*A-1, A-2	0-15	10-30	35-70	10-55	5-50	0-35	15-25	5-10
	30-60	*Extremely gravelly sandy loam, extremely cobbly coarse sand, extremely cobbly loamy coarse sand, extremely gravelly sand, very gravelly sand	*GP-GM, GP, SC-SM	*A-1, A-2	0-15	25-45	45-80	10-55	5-45	0-30	5-20	NP-5
Kewake----------	0-4	*Ashy sand	*SP-SM, SM, SC-SM	*A-2, A-1	0	0	100	100	50-70	5-15	10-15	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
630:												
Thornlake-------	0-5	*Gravelly ashy loamy sand	*SM, SP-SM, SC-SM	*A-1	0	0	55-70	50-65	30-50	10-20	15-25	NP-5
	5-59	*Gravelly ashy sandy loam, gravelly ashy loamy sand	*SC-SM, GM, SC	*A-1, A-2	0	0	55-75	50-70	30-60	15-30	15-30	NP-10
	59-65	*Ashy fine sandy loam, ashy loamy fine sand	*SC-SM, SC, SM	*A-2, A-4	0	0	75-100	70-100	55-80	20-45	15-25	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
630:												
Kewake----------	0-4	*Ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-20	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
631:												
Thornlake-------	0-7	*Ashy sandy loam	*SC-SM, SC	*A-2, A-4	0	0	100	100	60-70	30-40	20-30	5-10
	7-25	*Ashy loam, ashy silt loam	*CL	*A-6, A-4	0	0	100	100	50-100	50-100	25-35	10-20
	25-61	*Ashy sandy loam, ashy loamy sand, ashy silt loam, ashy loam	*SC-SM, SM, CL	*A-2, A-1, A-6	0	0	100	100	50-100	15-100	15-35	NP-15
Morehouse-------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15
632:												
Thornlake-------	0-7	*Ashy sandy loam	*SC-SM, SC	*A-2, A-4	0	0	100	100	60-70	30-40	20-30	5-10
	7-25	*Ashy loam, ashy silt loam	*CL	*A-6, A-4	0	0	100	100	50-100	50-100	25-35	10-20
	25-61	*Ashy sandy loam, ashy loamy sand, ashy silt loam, ashy loam	*SC-SM, SM, CL	*A-2, A-1, A-6	0	0	100	100	50-100	15-100	15-35	NP-15
Salhouse--------	0-5	*Ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	95-100	90-100	50-75	15-30	0-20	NP-5
	5-42	*Ashy loamy sand, ashy sand	*SC-SM, SP-SM	*A-2, A-1	0	0	95-100	90-100	50-75	5-30	0-20	NP-5
	42-61	*Ashy silt loam, ashy loam, ashy sandy loam, silt loam, loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	95-100	90-100	55-100	30-100	20-35	5-20

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
633:												
Thornlake, dunes	0-7	*Ashy silt loam	*CL-ML, ML	*A-4	0	0	100	100	90-100	70-90	20-35	5-15
	7-25	*Ashy loam, ashy silt loam	*CL	*A-6, A-4	0	0	100	100	50-100	50-100	25-35	10-20
	25-61	*Ashy sandy loam, ashy loamy sand, ashy silt loam, ashy loam	*SC-SM, SM, CL	*A-2, A-1, A-6	0	0	100	100	50-100	15-100	15-35	NP-15
Salhouse, dunes	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-2, A-4	0	0	95-100	90-100	60-80	20-40	0-20	NP-5
	5-42	*Ashy loamy sand, ashy sand	*SC-SM, SP-SM	*A-2, A-1	0	0	95-100	90-100	50-75	5-30	0-20	NP-5
	42-61	*Ashy silt loam, ashy loam, ashy sandy loam, silt loam, loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	95-100	90-100	55-100	30-100	20-35	5-20
634:												
Thornlake-------	0-7	*Ashy sandy loam	*SC-SM, SC	*A-2, A-4	0	0	100	100	60-70	30-40	20-30	5-10
	7-25	*Ashy loam, ashy silt loam	*CL	*A-6, A-4	0	0	100	100	50-100	50-100	25-35	10-20
	25-61	*Ashy sandy loam, ashy loamy sand, ashy silt loam, ashy loam	*SC-SM, SM, CL	*A-2, A-1, A-6	0	0	100	100	50-100	15-100	15-35	NP-15
Salhouse--------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-2, A-4	0	0	95-100	90-100	60-80	20-40	0-20	NP-5
	5-42	*Ashy loamy sand, ashy sand	*SC-SM, SP-SM	*A-2, A-1	0	0	95-100	90-100	50-75	5-30	0-20	NP-5
	42-61	*Ashy silt loam, ashy loam, ashy sandy loam, silt loam, loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	95-100	90-100	55-100	30-100	20-35	5-20
Fossilake-------	0-1	*Ashy silt loam	*CL-ML, ML	*A-4	0	0	100	100	90-100	70-90	15-30	NP-10
	1-3	*Ashy very fine sandy loam	*CL-ML, SC-SM	*A-4	0	0	100	100	90-100	40-60	20-30	5-10
	3-15	*Ashy silt loam, ashy sandy clay loam, ashy very fine sandy loam	*CL, SC-SM	*A-6, A-4	0	0	100	100	80-100	45-95	20-35	5-20
	15-31	*Stratified ashy loamy sand to ashy loam	*SC-SM, CL	*A-4, A-6, A-2	0	0	100	100	60-100	20-80	15-35	5-15
	31-43	*Ashy loam, ashy clay loam	*CL	*A-6	0	0	100	100	90-100	60-85	30-40	15-25
	43-66	*Ashy silt loam, ashy loam	*CL	*A-6, A-4	0	0	100	100	90-100	55-95	25-35	10-20

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
635:												
Teguro----------	0-2	*Loam	*ML, CL-ML	*A-4	0	0-10	90-100	85-100	65-95	55-70	25-35	5-10
	2-8	*Cobbly loam	*ML, SC-SM	*A-4	0	15-25	70-95	70-90	60-85	40-70	25-35	5-10
	8-15	*Clay loam, gravelly loam, gravelly clay loam, cobbly clay loam	*CL, CH, SC	*A-7, A-2	0	10-30	65-95	60-90	40-90	30-70	35-50	15-25
	15-25	*Bedrock			---	---	---	---	---	---	---	---
Carryback-------	0-3	*Very stony loam	*SC, CL	*A-6, A-2	30-45	10-30	40-85	35-70	30-70	25-65	25-35	10-15
	3-7	*Silty clay loam, loam	*CL	*A-6	0	0	90-100	80-100	70-100	60-95	35-45	15-25
	7-11	*Clay, silty clay, gravelly silty clay	*CH	*A-7	0	0-10	70-100	60-100	60-100	55-95	50-65	30-40
	11-17	*Clay, gravelly silty clay, silty clay, gravelly clay	*CH	*A-7	0	0-15	70-100	60-100	60-100	55-95	50-65	30-40
	17-24	*Clay, gravelly silty clay, gravelly clay, silty clay	*CH	*A-7	0	0-15	70-100	60-100	60-100	55-95	50-65	30-40
	24-34	*Bedrock			---	---	---	---	---	---	---	---
636:												
Toll------------	0-15	*Gravelly loamy sand	*SM, SC-SM	*A-1, A-2	0	0	60-80	55-75	40-60	15-30	15-20	NP-5
	15-40	*Loamy sand, coarse sand	*SM, SC-SM	*A-2, A-1	0	0	85-100	80-100	40-75	15-30	15-20	NP-5
	40-60	*Gravelly coarse sand, coarse sand, gravelly loamy sand	*SP-SM, SC-SM	*A-1, A-2	0	0	60-100	55-100	30-70	5-30	0-20	NP-5
637:												
Toll------------	0-15	*Loamy sand	*SM, SC-SM	*A-2	0	0	95-100	90-100	60-75	15-30	15-20	NP-5
	15-40	*Loamy sand, coarse sand	*SM, SC-SM	*A-2, A-1	0	0	85-100	80-100	40-75	15-30	15-20	NP-5
	40-60	*Gravelly coarse sand, coarse sand, gravelly loamy sand	*SP-SM, SC-SM	*A-1, A-2	0	0	60-100	55-100	30-70	5-30	0-20	NP-5
Nevador---------	0-4	*Sandy loam	*SC-SM	*A-2, A-1, A-4	0	0	80-100	75-100	40-70	20-40	20-25	5-10
	4-25	*Sandy clay loam, clay loam, loam	*SC, CL	*A-6, A-2, A-7	0	0	80-100	75-100	55-100	25-80	30-45	15-25
	25-30	*Extremely gravelly sandy loam, extremely gravelly loamy sand, gravelly fine sandy loam	*GW-GC, GP-GC, GC	*A-1, A-4	0	0-10	25-80	20-75	10-60	5-40	15-25	NP-10
	30-60	*Loamy fine sand, loamy sand	*SM, SC-SM	*A-4, A-1	0	0	100	100	50-90	15-50	0-15	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
638:												
Tonor-----------	0-3	*Ashy silt loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	90-100	70-100	20-30	5-15
	3-11	*Ashy loam, ashy silt loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	85-100	60-100	20-30	5-15
	11-43	*Ashy sandy loam, ashy loam, ashy silt loam	*SC, CL	*A-2, A-6	0	0	100	100	60-100	30-100	25-35	10-20
	43-60	*Very paragravelly ashy silt loam, very parachannery ashy silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-100	25-35	10-20
639:												
Tuffcabin-------	0-5	*Ashy sandy loam	*SC-SM, SC	*A-2, A-4	0	0	100	100	60-70	30-40	25-30	5-10
	5-30	*Ashy sandy loam, ashy loam	*SC, SC-SM, CL	*A-4, A-6, A-2	0	0	100	100	60-95	30-75	25-35	5-15
	30-46	*Ashy clay loam, ashy loam	*CL	*A-6, A-7	0	0	100	100	85-95	60-80	30-45	15-25
	46-54	*Cemented material			---	---	---	---	---	---	---	---
	54-62	*Ashy loam, ashy fine sandy loam, ashy sandy loam	*CL-ML, CL, SM	*A-4, A-2	0	0	100	100	70-90	30-75	15-30	NP-15
640:												
Turpin----------	0-3	*Fine sandy loam	*CL, SM	*A-4	0	0	100	100	70-85	40-55	15-30	NP-10
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25
641:												
Turpin----------	0-3	*Very fine sandy loam	*CL, ML	*A-4	0	0	100	100	85-95	50-65	15-30	NP-10
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25
642:												
Turpin----------	0-3	*Loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	85-95	60-75	20-35	5-15
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
642:												
Boravall--------	0-2	*Clay loam	*CL	*A-6, A-7	0	0	100	100	85-95	65-75	35-45	20-25
	2-6	*Clay loam	*CL	*A-6, A-7	0	0	100	100	85-95	65-75	35-45	20-25
	6-17	*Clay loam, silty clay loam, clay	*CL, CH	*A-6, A-7	0	0	100	100	85-95	70-80	35-55	20-35
	17-31	*Clay loam, silty clay loam, clay	*CL, CH	*A-7, A-6	0	0	100	100	85-95	70-80	35-55	20-35
	31-42	*Clay loam, silty clay loam, clay	*CL, CH	*A-7, A-6	0	0	100	95-100	85-95	70-80	35-55	20-35
	42-54	*Clay, clay loam, silty clay loam	*CH, CL	*A-7, A-6	0	0	100	95-100	85-95	70-80	40-60	20-35
	54-64	*Clay, clay loam, silty clay loam	*CH, CL	*A-7, A-6	0	0	100	95-100	85-95	70-80	40-60	20-35
Playas----------	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
643:												
Turpin----------	0-3	*Fine sandy loam	*CL, SM	*A-4	0	0	100	100	70-85	40-55	15-30	NP-10
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25
Kewake----------	0-4	*Ashy loamy fine sand	*SM, SC-SM	*A-2	0	0	100	100	70-90	15-30	10-20	NP-5
	4-18	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	18-25	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	25-47	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
	47-60	*Ashy loamy fine sand, ashy fine sand	*SM, SC-SM	*A-4, A-2	0	0	100	100	65-90	20-50	10-15	NP-5
Playas----------	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
644:												
Turpin----------	0-3	*Loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	85-95	60-75	20-35	5-15
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25
Playas----------	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
645:												
Turpin, saline	0-3	*Loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	85-95	60-75	20-35	5-15
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25
Playas, saline--	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
646:												
Turpin, sodic---	0-3	*Loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	85-95	60-75	20-35	5-15
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25
Playas, sodic---	0-6	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
	6-60	*Stratified clay to silty clay loam	*CH, MH, CL	*A-7	0	0	100	100	100	90-100	45-75	20-40
647:												
Turpin----------	0-3	*Fine sandy loam	*CL, ML	*A-4	0	0	100	100	85-95	50-65	15-30	NP-10
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
647:												
Rabbitcreek-----	0-3	*Very gravelly loam	*GC, GC-GM	*A-2, A-1, A-6	0	0	40-55	35-50	25-50	20-40	25-35	5-15
	3-7	*Loam	*CL, CL-ML	*A-4, A-6	0	0	90-100	85-100	65-95	50-75	25-35	5-15
	7-14	*Clay loam, loam	*CL	*A-6, A-4	0	0	90-100	85-100	65-100	50-80	30-40	10-20
	14-26	*Loam, clay loam, sandy loam, sandy clay loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	45-100	25-80	30-40	10-20
	26-40	*Extremely paragravelly clay loam, extremely paragravelly sandy clay loam, extremely paragravelly sandy loam, paragravelly loam, extremely paragravelly loam	*CL, SC	*A-6, A-2	0	0	90-100	85-100	45-100	25-80	30-40	10-20
	40-62	*Extremely paragravelly silt loam, extremely paragravelly loam	*CL, CL-ML	*A-4, A-6	0	0	90-100	85-100	65-100	50-100	25-35	5-15
648:												
Turpin----------	0-3	*Sandy clay loam	*SC, CL	*A-6, A-7, A-2	0	0	100	100	80-90	35-55	30-45	15-25
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25
Reese-----------	0-4	*Very fine sandy loam	*CL, ML	*A-4	0	0	100	100	85-95	50-65	20-35	NP-10
	4-10	*Loam	*ML, CL-ML, CL	*A-4, A-6	0	0	100	100	85-95	60-75	20-40	5-15
	10-33	*Loam, clay loam	*CL	*A-6, A-4	0	0	100	100	85-100	60-80	30-40	10-20
	33-44	*Loam, coarse sandy loam, sandy loam	*CL, SC-SM	*A-4, A-2, A-6	0	0	100	100	60-90	35-65	20-35	5-15
	44-60	*Loam, sandy loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	85-95	60-75	20-35	5-15
649:												
Turpin----------	0-3	*Fine sandy loam	*CL, SM	*A-4	0	0	100	100	70-85	40-55	15-30	NP-10
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
649:												
Turpin, overblown	0-3	*Sandy loam	*SC-SM, SM	*A-2-4, A-4	0	0	100	100	60-70	30-40	10-30	NP-10
	3-18	*Loam, clay loam, sandy clay loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	25-45	5-25
	18-60	*Clay loam, loam, sandy clay loam, fine sandy loam	*CL, SC-SM	*A-6, A-4, A-7	0	0	100	100	70-95	40-80	20-45	5-25
650:												
Vitale	0-3	*Very cobbly sandy loam	*SC, SM, GW-GC	*A-2, A-1	0-15	30-45	40-75	35-65	15-40	10-25	25-35	5-10
	3-14	*Extremely cobbly loam, very cobbly loam	*GC, GP-GC	*A-2, A-6	0-15	30-55	30-75	25-70	15-55	10-45	30-40	10-20
	14-24	*Very cobbly clay loam, extremely cobbly clay loam	*GC, GP-GC, CL	*A-7, A-2	0-15	30-55	30-75	25-70	15-70	10-55	35-45	20-25
	24-34	*Bedrock			---	---	---	---	---	---	---	---
651:												
Wagontire	0-5	*Gravelly clay loam	*GC, CH	*A-7, A-2	0	0	55-80	50-75	45-70	35-55	40-50	20-25
	5-15	*Gravelly clay loam, gravelly clay	*GC, CH	*A-7, A-2	0	0-10	55-80	50-75	45-70	35-65	45-65	25-35
	15-40	*Cemented material			---	---	---	---	---	---	---	---
	40-60	*Very gravelly sandy loam	*GP-GC, GC	*A-2	0	0	30-55	25-50	15-35	10-20	25-30	10-15
652:												
Wanoga, south	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	60-80	55-75	30-50	10-20	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
653:												
Wanoga, south---	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	60-80	55-75	30-50	10-20	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---
654:												
Wanoga----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	60-80	55-75	30-50	10-20	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---
Henkle----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Extremely cobbly ashy loamy sand	*GP-GM	*A-1	0-15	30-65	40-55	35-50	15-30	5-15	10-15	NP-5
	6-16	*Gravelly ashy loam, very cobbly ashy fine sandy loam, very cobbly ashy loam, gravelly ashy fine sandy loam	*GC-GM, GM	*A-4, A-1, A-2	0-10	0-40	55-80	50-70	40-65	25-50	10-15	NP-5
	16-20	*Extremely bouldery ashy loam, extremely stony ashy sandy loam, very bouldery ashy loam, very bouldery ashy sandy loam, extremely stony ashy loam	*GC-GM, GM	*A-4, A-2, A-1	40-75	10-45	65-85	60-85	40-80	20-70	10-15	NP-5
	20-30	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
655:												
Wanoga----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	60-80	55-75	30-50	10-20	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---
Henkle, cool----	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Extremely cobbly ashy loamy sand	*GP-GM	*A-1	0-15	30-65	40-55	35-50	15-30	5-15	10-15	NP-5
	6-16	*Gravelly ashy loam, very cobbly ashy fine sandy loam, very cobbly ashy loam, gravelly ashy fine sandy loam	*GC-GM, GM	*A-4, A-1, A-2	0-10	0-40	55-80	50-70	40-65	25-50	10-15	NP-5
	16-20	*Extremely bouldery ashy loam, extremely stony ashy sandy loam, very bouldery ashy loam, very bouldery ashy sandy loam, extremely stony ashy loam	*GC-GM, GM	*A-4, A-2, A-1	40-75	10-45	65-85	60-85	40-80	20-70	10-15	NP-5
	20-30	*Bedrock			---	---	---	---	---	---	---	---
656:												
Wanoga, dry-----	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	50-70	15-30	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
656:												
Henkle, dry-----	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Extremely cobbly ashy loamy sand	*GP-GM	*A-1	0-15	30-65	40-55	35-50	15-30	5-15	10-15	NP-5
	6-16	*Gravelly ashy loam, very cobbly ashy fine sandy loam, very cobbly ashy loam, gravelly ashy fine sandy loam	*GC-GM, GM	*A-4, A-1, A-2	0-10	0-40	55-80	50-70	40-65	25-50	10-15	NP-5
	16-20	*Extremely bouldery ashy loam, extremely stony ashy sandy loam, very bouldery ashy loam, very bouldery ashy sandy loam, extremely stony ashy loam	*GC-GM, GM	*A-4, A-2, A-1	40-75	10-45	65-85	60-85	40-80	20-70	10-15	NP-5
	20-30	*Bedrock			---	---	---	---	---	---	---	---
657:												
Wanoga, moist---	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	50-70	15-30	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
657:												
Henkle, moist	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Extremely cobbly ashy loamy sand	*GP-GM	*A-1	0-15	30-65	40-55	35-50	15-30	5-15	10-15	NP-5
	6-16	*Gravelly ashy loam, very cobbly ashy fine sandy loam, very cobbly ashy loam, gravelly ashy fine sandy loam	*GC-GM, GM	*A-4, A-1, A-2	0-10	0-40	55-80	50-70	40-65	25-50	10-15	NP-5
	16-20	*Extremely bouldery ashy loam, extremely stony ashy sandy loam, very bouldery ashy loam, very bouldery ashy sandy loam, extremely stony ashy loam	*GC-GM, GM	*A-4, A-2, A-1	40-75	10-45	65-85	60-85	40-80	20-70	10-15	NP-5
	20-30	*Bedrock			---	---	---	---	---	---	---	---
658:												
Wanoga	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	60-80	55-75	30-50	10-20	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
658:												
Henkle----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Extremely cobbly ashy loamy sand	*GP-GM	*A-1	0-15	30-65	40-55	35-50	15-30	5-15	10-15	NP-5
	6-16	*Gravelly ashy loam, very cobbly ashy fine sandy loam, very cobbly ashy loam, gravelly ashy fine sandy loam	*GC-GM, GM	*A-4, A-1, A-2	0-10	0-40	55-80	50-70	40-65	25-50	10-15	NP-5
	16-20	*Extremely bouldery ashy loam, extremely stony ashy sandy loam, very bouldery ashy loam, very bouldery ashy sandy loam, extremely stony ashy loam	*GC-GM, GM	*A-4, A-2, A-1	40-75	10-45	65-85	60-85	40-80	20-70	10-15	NP-5
	20-30	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
659:												
Wanoga, north---	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	60-80	55-75	30-50	10-20	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
659:												
Henkle, north---	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Extremely cobbly ashy loamy sand	*GP-GM	*A-1	0-15	30-65	40-55	35-50	15-30	5-15	10-15	NP-5
	6-16	*Gravelly ashy loam, very cobbly ashy fine sandy loam, very cobbly ashy loam, gravelly ashy fine sandy loam	*GC-GM, GM	*A-4, A-1, A-2	0-10	0-40	55-80	50-70	40-65	25-50	10-15	NP-5
	16-20	*Extremely bouldery ashy loam, extremely stony ashy sandy loam, very bouldery ashy loam, very bouldery ashy sandy loam, extremely stony ashy loam	*GC-GM, GM	*A-4, A-2, A-1	40-75	10-45	65-85	60-85	40-80	20-70	10-15	NP-5
	20-30	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
660:												
Wanoga----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	60-80	55-75	30-50	10-20	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
660:												
Laidlaw----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-5	*Gravelly ashy loamy sand	*SC-SM, SP-SM, SM	*A-1, A-2	0	0	65-80	55-75	35-55	10-25	15-25	NP-5
	5-13	*Ashy loamy sand, ashy loamy coarse sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	30-75	10-30	10-15	NP-5
	13-31	*Ashy loamy coarse sand, ashy loamy sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	30-75	10-30	10-15	NP-5
	31-37	*Cobbly ashy sandy loam, ashy fine sandy loam, ashy sandy loam, gravelly ashy fine sandy loam	*SC-SM, SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	35-70	20-40	15-25	NP-10
	37-50	*Ashy fine sandy loam, ashy sandy loam, cobbly ashy sandy loam, gravelly ashy fine sandy loam	*SC-SM, SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	35-70	20-40	15-25	NP-10
	50-60	*Ashy loamy fine sand, ashy fine sandy loam, cobbly ashy loamy sand, gravelly ashy loamy sand	*SM, SC-SM	*A-2, A-4, A-1	0	0-40	70-100	65-100	30-75	10-40	10-15	NP-5
661:												
Wanoga-----------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-8	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	60-80	55-75	30-50	10-20	20-30	NP-5
	8-23	*Ashy sand, ashy loamy coarse sand, ashy sandy loam, ashy loamy sand	*SM, SP-SM	*A-2, A-1, A-4	0	0	90-100	85-100	50-75	5-40	20-35	NP-10
	23-29	*Ashy sandy loam, cobbly sandy loam	*SC-SM	*A-4, A-1	0	0-30	80-100	75-100	45-70	25-40	10-15	5
	29-39	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
661:												
Sisters---------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-10	*Paragravelly ashy loamy sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	10-15	NP-5
	10-17	*Ashy loamy sand, ashy sand, paragravelly ashy sand, paragravelly ashy loamy sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-70	5-30	10-15	NP-5
	17-33	*Paragravelly ashy sand, ashy sand, ashy loamy sand, paragravelly ashy loamy sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-70	5-30	10-15	NP-5
	33-47	*Clay loam, gravelly clay loam, loam, gravelly loam	*CL-ML, GC-GM, CL	*A-4, A-2, A-6	0	0	65-100	60-100	55-90	35-80	20-40	5-20
	47-51	*Bedrock			---	---	---	---	---	---	---	---
663:												
Wegert----------	0-2	*Ashy loamy fine sand	*SM	*A-1, A-2	0	0-5	85-100	80-95	45-75	15-35	20-30	NP-5
	2-6	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-2, A-1	0	0	80-100	75-100	35-70	10-30	20-25	NP-5
	6-27	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-1, A-2	0	0-15	80-100	75-100	35-70	10-30	15-30	NP-10
	27-31	*Extremely cobbly ashy loamy sand, very cobbly ashy loamy sand	*GP-GC, SC-SM	*A-1, A-2	0	55-80	35-100	20-100	10-70	5-20	15-25	NP-5
	31-41	*Bedrock			---	---	---	---	---	---	---	---
664:												
Wegert, cool----	0-2	*Ashy loamy sand	*SM	*A-1, A-2	0	0	90-100	85-100	40-75	15-25	20-30	NP-5
	2-6	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-2, A-1	0	0	80-100	75-100	35-70	10-30	20-25	NP-5
	6-27	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-1, A-2	0	0-15	80-100	75-100	35-70	10-30	15-30	NP-10
	27-31	*Extremely cobbly ashy loamy sand, very cobbly ashy loamy sand	*GP-GC, SC-SM	*A-1, A-2	0	55-80	35-100	20-100	10-70	5-20	15-25	NP-5
	31-41	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
665:												
Wegert----------	0-2	*Very cobbly ashy loamy fine sand	*GM, GP-GM, SM	*A-1, A-2	0-10	25-40	45-70	40-65	30-50	10-30	20-30	NP-5
	2-6	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-2, A-1	0	0	80-100	75-100	35-70	10-30	20-25	NP-5
	6-27	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-1, A-2	0	0-15	80-100	75-100	35-70	10-30	15-30	NP-10
	27-31	*Extremely cobbly ashy loamy sand, very cobbly ashy loamy sand	*GP-GC, SC-SM	*A-1, A-2	0	55-80	35-100	20-100	10-70	5-20	15-25	NP-5
	31-41	*Bedrock			---	---	---	---	---	---	---	---
666:												
Wegert----------	0-2	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	55-80	50-75	25-50	10-20	20-30	NP-5
	2-6	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-2, A-1	0	0	80-100	75-100	35-70	10-30	20-25	NP-5
	6-27	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-1, A-2	0	0-15	80-100	75-100	35-70	10-30	15-30	NP-10
	27-31	*Extremely cobbly ashy loamy sand, very cobbly ashy loamy sand	*GP-GC, SC-SM	*A-1, A-2	0	55-80	35-100	20-100	10-70	5-20	15-25	NP-5
	31-41	*Bedrock			---	---	---	---	---	---	---	---
Kunceider-------	0-5	*Cobbly ashy loamy sand	*SC-SM, SW-SM, SM	*A-1	0	15-40	70-90	65-85	25-50	10-20	20-30	NP-5
	5-9	*Very cobbly ashy loamy sand	*SC-SM, GP-GM	*A-1	0	25-60	50-85	45-80	20-50	5-20	15-25	NP-5
	9-14	*Extremely gravelly ashy sandy loam, very cobbly ashy sandy loam, very cobbly ashy loamy sand, extremely gravelly ashy loamy sand	*GW-GM, GC, GW	*A-1, A-2	0	30-40	30-75	25-70	10-50	0-30	15-25	NP-10
	14-24	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
667:												
Wegert, cool----	0-2	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	55-80	50-75	25-50	10-20	20-30	NP-5
	2-6	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-2, A-1	0	0	80-100	75-100	35-70	10-30	20-25	NP-5
	6-27	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-1, A-2	0	0-15	80-100	75-100	35-70	10-30	15-30	NP-10
	27-31	*Extremely cobbly ashy loamy sand, very cobbly ashy loamy sand	*GP-GC, SC-SM	*A-1, A-2	0	55-80	35-100	20-100	10-70	5-20	15-25	NP-5
	31-41	*Bedrock			---	---	---	---	---	---	---	---
Kunceider, cool	0-5	*Cobbly ashy loamy sand	*SC-SM, SW-SM, SM	*A-1	0	15-40	70-90	65-85	25-50	10-20	20-30	NP-5
	5-9	*Very cobbly ashy loamy sand	*SC-SM, GP-GM	*A-1	0	25-60	50-85	45-80	20-50	5-20	15-25	NP-5
	9-14	*Extremely gravelly ashy sandy loam, very cobbly ashy sandy loam, very cobbly ashy loamy sand, extremely gravelly ashy loamy sand	*GW-GM, GC, GW	*A-1, A-2	0	30-40	30-75	25-70	10-50	0-30	15-25	NP-10
	14-24	*Bedrock			---	---	---	---	---	---	---	---
668:												
Wegert, high precipitation--	0-2	*Gravelly ashy loamy sand	*SM, SP-SM	*A-1	0	0-10	55-80	50-75	25-50	10-20	20-30	NP-5
	2-6	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-2, A-1	0	0	80-100	75-100	35-70	10-30	20-25	NP-5
	6-27	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-1, A-2	0	0-15	80-100	75-100	35-70	10-30	15-30	NP-10
	27-31	*Extremely cobbly ashy loamy sand, very cobbly ashy loamy sand	*GP-GC, SC-SM	*A-1, A-2	0	55-80	35-100	20-100	10-70	5-20	15-25	NP-5
	31-41	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
668:												
Kunceider, high precipitation--	0-5	*Cobbly ashy loamy sand	*SC-SM, SW-SM, SM	*A-1	0	15-40	70-90	65-85	25-50	10-20	20-30	NP-5
	5-9	*Very cobbly ashy loamy sand	*SC-SM, GP-GM	*A-1	0	25-60	50-85	45-80	20-50	5-20	15-25	NP-5
	9-14	*Extremely gravelly ashy sandy loam, very cobbly ashy sandy loam, very cobbly ashy loamy sand, extremely gravelly ashy loamy sand	*GW-GM, GC, GW	*A-1, A-2	0	30-40	30-75	25-70	10-50	0-30	15-25	NP-10
	14-24	*Bedrock			---	---	---	---	---	---	---	---
669:												
Wegert----------	0-2	*Ashy loamy sand	*SM	*A-1, A-2	0	0	90-100	85-100	40-75	15-25	20-30	NP-5
	2-6	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-2, A-1	0	0	80-100	75-100	35-70	10-30	20-25	NP-5
	6-27	*Ashy loamy sand, ashy sandy loam	*SC-SM, SW-SM	*A-1, A-2	0	0-15	80-100	75-100	35-70	10-30	15-30	NP-10
	27-31	*Extremely cobbly ashy loamy sand, very cobbly ashy loamy sand	*GP-GC, SC-SM	*A-1, A-2	0	55-80	35-100	20-100	10-70	5-20	15-25	NP-5
	31-41	*Bedrock			---	---	---	---	---	---	---	---
Morehouse-------	0-5	*Ashy loamy fine sand	*SM, SC-SM	*A-4, A-2	0	0	80-100	75-100	65-90	30-50	0-20	NP-5
	5-22	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SW-SM, SC-SM	*A-2, A-1	0	0	75-100	70-100	35-75	10-30	0-20	NP-5
	22-41	*Ashy loamy sand, gravelly ashy loamy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	60-100	55-100	30-75	10-30	0-20	NP-5
	41-60	*Ashy loam, ashy silt loam	*CL, SC-SM, SP-SM, SM	*A-4	0	0	80-100	75-100	60-100	40-90	20-35	5-15

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
670:												
Weglike---------	0-3	*Gravelly ashy coarse sandy loam	*SC-SM, SM	*A-1, A-2	0	0	60-80	55-75	35-50	20-30	20-30	NP-5
	3-12	*Ashy sandy loam, ashy loamy sand	*SC-SM, SM	*A-2, A-1, A-4	0	0	90-100	85-100	40-75	15-40	20-30	NP-5
	12-22	*Gravelly loam, gravelly sandy loam, gravelly clay loam	*GC, SC, CL	*A-6, A-2	0	0-15	60-80	55-75	30-70	15-55	25-40	10-20
	22-23	*Extremely gravelly loam, very gravelly clay loam	*GP-GC, GC	*A-2, A-6	0	0-30	30-55	25-50	15-45	10-40	25-40	10-20
	23-33	*Bedrock			---	---	---	---	---	---	---	---
Jacksplace------	0-4	*Cobbly ashy loamy sand	*SC-SM, SW-SM	*A-1, A-2	0-10	10-25	80-95	75-90	35-70	10-25	20-25	NP-5
	4-9	*Cobbly ashy sandy loam, cobbly ashy loamy sand	*SC-SM, SW-SM, SM	*A-2, A-1	0-5	15-30	75-95	70-90	35-65	10-35	20-30	NP-5
	9-12	*Very stony ashy sandy loam, extremely stony ashy sandy loam, very cobbly ashy sandy loam	*SC, GW-GC	*A-2	15-45	15-45	45-80	40-75	15-50	10-30	25-30	10-15
	12-20	*Extremely stony ashy sandy clay loam, very stony ashy sandy loam, very stony ashy sandy clay loam	*GC, GP-GC, SC	*A-2	25-50	15-30	50-85	45-80	25-65	10-40	25-40	10-20
	20-26	*Extremely stony ashy sandy loam, very stony ashy sandy loam	*SC, GC	*A-2	30-55	15-30	55-90	50-85	30-55	15-30	25-30	10-15
	26-30	*Bedrock			---	---	---	---	---	---	---	---
671:												
Weglike---------	0-3	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	50-75	15-30	20-30	NP-5
	3-12	*Ashy sandy loam, ashy loamy sand	*SC-SM, SM	*A-2, A-1, A-4	0	0	90-100	85-100	40-75	15-40	20-30	NP-5
	12-22	*Gravelly loam, gravelly sandy loam, gravelly clay loam	*GC, SC, CL	*A-6, A-2	0	0-15	60-80	55-75	30-70	15-55	25-40	10-20
	22-23	*Extremely gravelly loam, very gravelly clay loam	*GP-GC, GC	*A-2, A-6	0	0-30	30-55	25-50	15-45	10-40	25-40	10-20
	23-33	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
671:												
Suckerflat------	0-8	*Ashy loamy sand	*SM	*A-2, A-1	0	0	90-100	85-100	40-75	15-30	20-30	NP-5
	8-18	*Cobbly ashy loam, ashy loamy sand, ashy sandy loam	*CL, SC-SM, ML	*A-4, A-1	0-10	0-15	80-100	75-100	40-80	25-70	20-35	5-10
	18-28	*Bedrock			---	---	---	---	---	---	---	---
672:												
Westbutte, north	0-3	*Very stony loam	*SM, CL, GC	*A-4, A-6, A-2	25-55	10-35	50-75	45-70	35-65	25-60	30-40	10-15
	3-11	*Very cobbly loam, extremely cobbly clay loam, very cobbly clay loam, extremely cobbly loam, very stony loam	*GC, SC	*A-6, A-7, A-2	0-50	30-55	30-85	25-80	25-60	20-50	30-45	10-20
	11-21	*Extremely cobbly clay loam, very cobbly loam, very stony loam, very cobbly clay loam, extremely cobbly loam	*GC	*A-6, A-2, A-7	0-50	30-55	30-65	25-60	25-60	20-50	30-45	10-20
	21-31	*Bedrock			---	---	---	---	---	---	---	---
Lambring, north	0-5	*Very cobbly loam	*GM, SC, GC-GM	*A-4, A-6, A-1, A-2	0-25	25-40	50-90	45-80	30-75	25-50	25-40	5-15
	5-20	*Very cobbly sandy loam	*GP-GC, SM	*A-2, A-1	0-15	30-55	45-90	40-80	15-55	10-30	25-35	5-10
	20-50	*Extremely cobbly loamy sand, very cobbly loam, extremely cobbly sandy loam, very gravelly loam	*GP-GC, GC	*A-1, A-4	0-15	25-55	30-75	25-65	10-60	0-50	15-25	5-10
	50-60	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
673:												
Westbutte, north	0-3	*Very stony loam	*SM, CL, GC	*A-4, A-6, A-2	25-55	10-35	50-75	45-70	35-65	25-60	30-40	10-15
	3-11	*Very cobbly loam, extremely cobbly clay loam, very cobbly clay loam, extremely cobbly loam, very stony loam	*GC, SC	*A-6, A-7, A-2	0-50	30-55	30-85	25-80	25-60	20-50	30-45	10-20
	11-21	*Extremely cobbly clay loam, very cobbly loam, very stony loam, very cobbly clay loam, extremely cobbly loam	*GC	*A-6, A-2, A-7	0-50	30-55	30-65	25-60	25-60	20-50	30-45	10-20
	21-31	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
Pernty, south---	0-3	*Gravelly sandy loam	*SC-SM, SC	*A-1, A-2	0	0-15	60-80	55-75	35-50	15-30	20-30	5-10
	3-12	*Very cobbly clay loam, very cobbly loam	*GC	*A-7, A-2	0-15	30-50	55-75	50-70	45-60	35-50	40-50	20-25
	12-22	*Bedrock			---	---	---	---	---	---	---	---
674:												
Widowspring-----	0-7	*Silt loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	90-100	70-100	25-40	5-15
	7-22	*Silt loam	*CL, CL-ML	*A-4, A-6	0	0	100	100	90-100	70-100	25-40	5-15
	22-43	*Silt loam, silty clay loam	*CL	*A-6, A-4, A-7	0	0	100	100	90-100	70-100	30-45	10-25
	43-63	*Loam, silt loam	*CL	*A-6, A-4	0	0	100	100	85-100	60-100	30-40	10-15
675:												
Wildcatbutte----	0-4	*Gravelly ashy fine sandy loam	*SC-SM, SC, GM	*A-4, A-2	0	0-10	60-80	55-75	45-60	30-40	20-30	NP-10
	4-24	*Very cobbly ashy loam, extremely cobbly ashy loam	*GM, SM, GP-GC	*A-4, A-1	0-25	25-55	35-80	30-75	10-65	10-50	25-35	5-10
	24-60	*Extremely cobbly ashy sandy loam, extremely gravelly ashy loamy sand, very cobbly ashy sandy loam, extremely cobbly ashy loam, very cobbly ashy loam	*GC-GM, GC, GW-GM	*A-1, A-4	10-25	15-55	35-70	20-65	10-60	5-40	15-30	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
675:												
Chesebro	0-4	*Very cobbly ashy loam	*GC, CL, GC-GM	*A-2, A-6, A-1	0-10	25-30	45-75	35-65	30-60	25-55	25-40	5-15
	4-24	*Very stony ashy loam, very cobbly ashy loam	*GC, GC-GM, CL	*A-2, A-1, A-6	0-30	10-65	35-85	30-80	25-75	20-60	25-40	5-15
	24-60	*Very gravelly ashy loam, very cobbly ashy clay loam, very gravelly ashy sandy clay loam, very cobbly ashy loam	*GC, CL	*A-2, A-7	0-15	10-60	35-85	30-80	25-80	20-65	30-45	15-25
Glassbutte	0-4	*Gravelly ashy fine sandy loam	*GM, SM, GC-GM	*A-4, A-2	0	0-15	65-80	60-75	50-65	30-45	25-35	5-10
	4-12	*Gravelly ashy fine sandy loam, gravelly ashy loam, very gravelly ashy loam	*GM, SC, GC	*A-2, A-2	0	0-15	45-80	35-75	30-60	25-50	30-40	10-15
	12-23	*Extremely gravelly ashy sandy clay loam, extremely cobbly ashy clay loam	*GC, GP-GM	*A-2	0-5	15-55	20-60	15-55	10-45	10-30	35-45	10-20
	23-46	*Extremely cobbly loamy coarse sand	*GP-GC, GP-GM	*A-1	0-5	40-55	25-50	20-45	10-35	5-25	10-20	NP-5
	46-61	*Extremely cobbly ashy loamy sand, extremely cobbly ashy sandy loam	*GP-GC, GP-GM	*A-1	0-5	40-55	25-50	20-45	10-35	5-25	10-20	NP-5
676:												
Wildcatbutte, south	0-4	*Stony ashy sandy loam	*SC-SM, SC, GM	*A-1, A-2	15-25	0-15	75-95	70-90	35-55	15-30	20-30	NP-10
	4-24	*Very cobbly ashy loam, extremely cobbly ashy loam	*GM, SM, GP-GC	*A-4, A-1	0-25	25-55	35-80	30-75	10-65	10-50	25-35	5-10
	24-60	*Extremely cobbly ashy sandy loam, extremely gravelly ashy loamy sand, very cobbly ashy sandy loam, extremely cobbly ashy loam, very cobbly ashy loam	*GC-GM, GC, GW-GM	*A-1, A-4	10-25	15-55	35-70	20-65	10-60	5-40	15-30	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
676:												
Glencabin, north	0-5	*Cobbly ashy fine sandy loam	*CL, ML, SC-SM	*A-4, A-2	0-10	15-30	70-95	65-90	45-80	35-70	25-35	5-10
	5-11	*Cobbly ashy sandy loam	*SC, SC-SM	*A-2, A-1	0-15	15-40	85-95	80-90	40-60	20-35	20-35	5-15
	11-25	*Extremely cobbly ashy loam, very gravelly ashy loamy sand, extremely cobbly ashy sandy loam	*GC-GM, GC	*A-2, A-1	15-30	20-65	45-60	40-55	30-45	15-35	20-35	5-15
	25-35	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
677:												
Wildcatbutte, south----------	0-4	*Stony ashy sandy loam	*SC-SM, SC, GM	*A-1, A-2	15-25	0-15	75-95	70-90	35-55	15-30	20-30	NP-10
	4-24	*Very cobbly ashy loam, extremely cobbly ashy loam	*GM, SM, GP-GC	*A-4, A-1	0-25	25-55	35-80	30-75	10-65	10-50	25-35	5-10
	24-60	*Extremely cobbly ashy sandy loam, extremely gravelly ashy loamy sand, very cobbly ashy sandy loam, extremely cobbly ashy loam, very cobbly ashy loam	*GC-GM, GC, GW-GM	*A-1, A-4	10-25	15-55	35-70	20-65	10-60	5-40	15-30	NP-10
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
678:												
Wildcatbutte----	0-4	*Extremely cobbly ashy loam	*GM, GC-GM	*A-1, A-4	0-25	30-65	35-50	30-45	15-45	15-40	25-36	5-10
	4-24	*Very cobbly ashy loam, extremely cobbly ashy loam	*GM, SM, GP-GC	*A-4, A-1	0-25	25-55	35-80	30-75	10-65	10-50	25-35	5-10
	24-60	*Extremely cobbly ashy sandy loam, extremely gravelly ashy loamy sand, very cobbly ashy sandy loam, extremely cobbly ashy loam, very cobbly ashy loam	*GC-GM, GC, GW-GM	*A-1, A-4	10-25	15-55	35-70	20-65	10-60	5-40	15-30	NP-10
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	Percentage passing sieve number-- 10	Percentage passing sieve number-- 40	Percentage passing sieve number-- 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
679:												
Wildcatbutte----	0-4	*Cobbly ashy fine sandy loam	*SC-SM, SM, SC	*A-2, A-1, A-4	0	10-25	65-90	65-85	40-65	25-45	20-30	NP-10
	4-24	*Very cobbly ashy loam, extremely cobbly ashy loam	*GM, SM, GP-GC	*A-4, A-1	0-25	25-55	35-80	30-75	10-65	10-50	25-35	5-10
	24-60	*Extremely cobbly ashy sandy loam, extremely gravelly ashy loamy sand, very cobbly ashy sandy loam, extremely cobbly ashy loam, very cobbly ashy loam	*GC-GM, GC, GW-GM	*A-1, A-4	10-25	15-55	35-70	20-65	10-60	5-40	15-30	NP-10
Suckerflat, south----------	0-8	*Stony ashy sandy loam	*SC-SM, SM	*A-2, A-1	15-30	0-10	75-95	70-90	40-55	20-35	20-30	NP-5
	8-18	*Cobbly ashy loam, ashy loamy sand, ashy sandy loam	*CL, SC-SM, ML	*A-4, A-1	0-10	0-15	80-100	75-100	40-80	25-70	20-35	5-10
	18-28	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
680:												
Winterim--------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Very gravelly loam	*SC, GM, GC	*A-2	0-15	0-15	40-70	30-65	25-45	20-35	35-45	10-20
	6-13	*Gravelly clay loam, gravelly loam	*GC, CL	*A-6, A-2, A-7	0-10	0-10	60-90	50-75	45-70	35-55	35-45	15-20
	13-22	*Very gravelly clay, very gravelly clay loam	*GC	*A-2, A-7	0-10	0-15	40-60	30-50	25-50	20-50	45-60	25-35
	22-46	*Very gravelly clay	*GC	*A-2, A-7	0-10	0-15	40-60	30-50	25-50	20-50	50-60	30-35
	46-56	*Bedrock			---	---	---	---	---	---	---	---
681:												
Wiskan----------	0-3	*Very cobbly loamy fine sand	*GC-GM, SC-SM, GM	*A-1, A-2	0-15	15-40	50-85	45-80	35-70	15-30	15-25	NP-5
	3-10	*Gravelly sandy loam	*CL-ML, CL, GC-GM	*A-4, A-2	0-10	0-15	60-85	55-80	40-80	30-65	20-25	5-10
	10-21	*Very cobbly clay loam, cobbly clay loam	*CL, CH, GC	*A-7, A-2	0-10	25-40	50-85	45-80	35-80	30-65	40-50	20-30
	21-23	*Very gravelly loam, very cobbly loam	*SC, GC, CL	*A-2, A-6	0-10	15-30	45-70	40-65	25-60	20-55	30-40	15-20
	23-33	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
682:												
Xerolls, north--	0-7	*Extremely stony ashy fine sandy loam	*GP-GC, GC	*A-1, A-2	30-60	25-60	20-70	15-65	5-50	5-30	20-30	5-10
	7-11	*Extremely stony ashy fine sandy loam, very cobbly ashy loam, very stony ashy fine sandy loam, gravelly ashy sandy loam, very gravelly ashy clay loam	*GC-GM, GP-GC, CL	*A-1, A-6	0-55	10-55	35-95	30-90	15-80	5-65	20-40	5-20
	11-21	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
683:												
Xerolls, north--	0-7	*Extremely stony ashy fine sandy loam	*GP-GC, GC	*A-1, A-2	30-60	25-60	20-70	15-65	5-50	5-30	20-30	5-10
	7-11	*Extremely stony ashy fine sandy loam, very cobbly ashy loam, very stony ashy fine sandy loam, gravelly ashy sandy loam, very gravelly ashy clay loam	*GC-GM, GP-GC, CL	*A-1, A-6	0-55	10-55	35-95	30-90	15-80	5-65	20-40	5-20
	11-21	*Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	*Bedrock			---	---	---	---	---	---	---	---
684:												
Yankeewell------	0-3	*Very cobbly sandy loam	*SC-SM, SC, SP-SC	*A-1, A-2	0-10	30-40	55-80	50-70	25-50	10-30	20-25	5-10
	3-6	*Gravelly loam, fine sandy loam, loam, cobbly sandy loam	*SC	*A-6, A-2	0-10	0-30	70-90	65-85	40-75	15-50	25-35	10-20
	6-11	*Clay loam, cobbly clay loam, gravelly clay loam	*CL, CH	*A-7, A-6	0-10	0-25	80-100	75-100	70-95	50-80	40-50	20-25
	11-25	*Cemented material			---	---	---	---	---	---	---	---
	25-35	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
685:												
Yankeewell------	0-3	*Very stony loam	*GC, GC-GM	*A-2, A-6, A-1	15-30	10-15	55-70	50-65	35-55	25-45	25-35	5-15
	3-6	*Gravelly loam, fine sandy loam, loam, cobbly sandy loam	*SC	*A-6, A-2	0-10	0-30	70-90	65-85	40-75	15-50	25-35	10-20
	6-11	*Clay loam, cobbly clay loam, gravelly clay loam	*CL, CH	*A-7, A-6	0-10	0-25	80-100	75-100	70-95	50-80	40-50	20-25
	11-25	*Cemented material			---	---	---	---	---	---	---	---
	25-35	*Bedrock			---	---	---	---	---	---	---	---
Noidee----------	0-2	*Extremely stony fine sandy loam	*SC-SM, GW-GC, GC	*A-2, A-1, A-4	30-45	25-45	40-70	35-65	20-60	10-40	20-30	5-10
	2-5	*Clay, sandy clay, cobbly clay, clay loam	*CH, CL	*A-7	0-15	0-30	80-100	75-100	65-100	50-95	45-55	25-35
	5-16	*Sandy clay loam, clay loam, clay, cobbly clay loam	*CL, CH, SC	*A-6, A-7	0-10	0-30	80-100	75-100	55-100	40-90	35-55	20-35
	16-26	*Bedrock			---	---	---	---	---	---	---	---
686:												
Yapoah, north---	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Gravelly ashy loamy sand	*SC-SM, SP-SM, SM	*A-1	0	0	55-75	50-70	25-50	10-20	20-30	NP-5
	6-16	*Gravelly ashy loamy sand, gravelly ashy sandy loam, very gravelly ashy loamy sand	*SW-SM, SM, GP-GM	*A-1	0	0-15	50-80	45-75	20-50	5-20	20-30	NP-5
	16-36	*Very gravelly ashy loamy sand, very gravelly ashy sandy loam, gravelly ashy loamy sand	*SP-SC, SM, GP-GM	*A-1	0	0-15	45-80	40-75	20-50	5-20	20-30	NP-5
	36-61	*Extremely flaggy ashy loamy sand, very gravelly ashy sandy loam, very cobbly ashy loamy sand, very gravelly ashy loamy sand	*GP-GC, SC-SM, GP-GM	*A-1	0-55	15-55	35-75	30-70	15-45	5-20	15-25	NP-5

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
687:												
Yapoah, south---	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-6	*Gravelly ashy loamy sand	*SC-SM, SP-SM, SM	*A-1	0	0	55-75	50-70	25-50	10-20	20-30	NP-5
	6-16	*Gravelly ashy loamy sand, gravelly ashy sandy loam, very gravelly ashy loamy sand	*SW-SM, SM, GP-GM	*A-1	0	0-15	50-80	45-75	20-50	5-20	20-30	NP-5
	16-36	*Very gravelly ashy loamy sand, very gravelly ashy sandy loam, gravelly ashy loamy sand	*SP-SC, SM, GP-GM	*A-1	0	0-15	45-80	40-75	20-50	5-20	20-30	NP-5
	36-61	*Extremely flaggy ashy loamy sand, very gravelly ashy sandy loam, very cobbly ashy loamy sand, very gravelly ashy loamy sand	*GP-GC, SC-SM, GP-GM	*A-1	0-55	15-55	35-75	30-70	15-45	5-20	15-25	NP-5
688:												
Youtlkue--------	0-5	*Ashy silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-95	25-35	10-15
	5-22	*Ashy silty clay loam, ashy silt loam, ashy loam	*CL	*A-6, A-7, A-4	0	0	100	100	85-100	60-95	25-45	10-20
	22-32	*Very paragravelly ashy silt loam, extremely paragravelly ashy silt loam	*CL	*A-6, A-4	0	0	100	100	90-100	70-95	25-35	10-15
	32-42	*Bedrock			---	---	---	---	---	---	---	---
689:												
Zorravista------	0-4	*Fine sand	*SM	*A-2	0	0	100	100	65-80	20-35	15-20	NP
	4-60	*Loamy fine sand, fine sand, sand	*SM, SW-SM	*A-2, A-4, A-1	0	0	100	100	50-80	10-40	15-20	NP
690:												
Zorravista------	0-4	*Fine sand	*SM	*A-2	0	0	100	100	65-80	20-35	15-20	NP
	4-60	*Loamy fine sand, fine sand, sand	*SM, SW-SM	*A-2, A-4, A-1	0	0	100	100	50-80	10-40	15-20	NP

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
690:												
Hinton----------	0-1	*Gravelly loamy sand	*SM, SW-SM, SC-SM	*A-1	0	0	65-80	55-75	30-50	10-20	0-25	NP-5
	1-12	*Sandy loam, loamy sand	*SM, SC-SM	*A-1, A-2	0	0	80-95	75-90	40-70	15-30	0-25	NP-5
	12-18	*Gravelly loam	*CL-ML, CL, GM	*A-4, A-2	0	0	65-80	60-75	40-75	30-60	20-25	NP-10
	18-60	*Extremely gravelly sand, very gravelly sand	*GP, GP-GC	*A-1	0	0-10	20-55	15-50	5-45	0-5	0-25	NP-5
691:												
Lithic Haploxerolls---	0-2	*Extremely stony ashy fine sandy loam	*GP-GC, GC	*A-1, A-2	40-60	15-45	20-70	15-65	5-50	5-30	20-30	5-10
	2-11	*Extremely stony ashy fine sandy loam, very cobbly ashy loam, very stony ashy fine sandy loam, extremely gravelly ashy sandy loam, very gravelly ashy clay loam	*GC-GM, GP-GC, GC	*A-1, A-6	0-55	25-55	30-60	25-55	15-50	10-45	20-40	5-20
	11-21	*Bedrock			---	---	---	---	---	---	---	---
Lava flows------	0-60	*Bedrock			---	---	---	---	---	---	---	---
692:												
Steiger---------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-4	*Ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	4-12	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	12-45	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-5	NP
	45-60	*Stony sandy loam, sandy loam, loam, gravelly loam	*SC-SM, SM, CL	*A-2, A-1, A-4	0-40	0-10	70-100	65-100	40-80	20-70	20-30	NP-10

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
693: Steiger, high elevation------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-4	*Ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	4-12	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	12-45	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-5	NP
	45-60	*Stony sandy loam, sandy loam, loam, gravelly loam	*SC-SM, SM, CL	*A-2, A-1, A-4	0-40	0-10	70-100	65-100	40-80	20-70	20-30	NP-10
694: Steiger, low landscape position-------	0-1	*Slightly decomposed plant material	*PT	*A-8	0	0	100	100	60-100	50-90	---	---
	1-4	*Ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	4-12	*Paragravelly ashy loamy coarse sand, ashy loamy coarse sand	*SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-5	NP
	12-45	*Ashy coarse sand, paragravelly ashy coarse sand, very paragravelly ashy coarse sand	*SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-5	NP
	45-60	*Stony sandy loam, sandy loam, loam, gravelly loam	*SC-SM, SM, CL	*A-2, A-1, A-4	0-40	0-10	70-100	65-100	40-80	20-70	20-30	NP-10
695: Ninemile, hummocky-------	0-2	*Gravelly loam	*SC, GC-GM, GC	*A-4, A-6, A-2	0-10	0-15	55-80	50-75	40-65	30-50	25-40	5-15
	2-17	*Cobbly clay, cobbly clay loam, clay	*CH, GC	*A-7	0-10	0-30	70-100	65-100	50-95	40-90	45-60	25-35
	17-27	*Bedrock			---	---	---	---	---	---	---	---

Table 7.—Engineering Soil Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
696:												
Shanahan--------	0-4	*Ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	4-9	*Paragravelly ashy loamy coarse sand	*SM, SC-SM	*A-2, A-1	0	0	100	100	50-75	15-30	0-20	NP-5
	9-38	*Ashy coarse sand, very paragravelly ashy coarse sand, paragravelly ashy coarse sand	*SM, SC-SM, SP-SM	*A-2, A-1	0	0	100	100	50-75	5-30	0-25	NP-10
	38-60	*Gravelly sandy loam, sandy loam	*SM, GC-GM, SC-SM	*A-2, A-1, A-4	0	0	55-100	50-90	35-70	20-40	20-40	5-10
888:												
Denied access---	---	---	---	---	---	---	---	---	---	---	---	---
999:												
Water-----------	---	---	---	---	---	---	---	---	---	---	---	---

Table 8.—Physical Soil Properties

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated or the layer consists of organic material.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
200:														
Abert	0-2	78-86	10-15	4-7	1.36-1.47	42.00-141.00	0.08-0.12	0.0-2.9	0.2-1.0	.20	.20	5	1	220
	2-8	55-85	10-30	5-15	1.38-1.44	14.00-141.00	0.09-0.20	0.0-2.9	0.2-0.4	.24	.24			
	8-13	35-75	15-45	10-20	1.27-1.48	4.00-42.00	0.16-0.27	0.0-2.9	0.1-0.4	.43	.43			
	13-25	5-50	38-65	18-30	1.25-1.35	1.40-14.00	0.20-0.31	3.0-5.9	0.1-0.4	.55	.55			
	25-35	5-50	40-65	18-30	1.17-1.35	1.40-14.00	0.05-0.28	3.0-5.9	0.1-0.4	.55	.55			
	35-60	35-85	12-45	5-20	1.27-1.43	4.00-141.00	0.00-0.23	0.0-2.9	0.1-0.4	.10	.24			
201:														
Actem	0-2	35-50	30-45	20-27	1.30-1.50	4.23-14.11	0.10-0.13	3.0-5.9	1.0-2.0	.24	.43	1	7	38
	2-7	10-40	15-40	35-45	1.40-1.50	0.42-1.41	0.10-0.15	6.0-9.0	0.5-1.0	.32	.32			
	7-15	10-40	15-40	35-45	1.40-1.50	0.42-1.41	0.10-0.15	6.0-9.0	0.5-1.0	.32	.32			
	15-20				---	0.01-0.42	0.00-0.00	---	---	---	---			
	20-30				---	---	---	---	---	---	---			
202:														
Alyan	0-3	55-75	13-25	12-20	1.32-1.54	14.00-42.00	0.07-0.11	0.0-5.9	1.0-3.0	.10	.20	2	5	56
	3-11	30-65	19-45	16-25	1.25-1.51	1.40-42.00	0.07-0.18	0.0-5.9	1.0-2.0	.24	.24			
	11-23	20-40	25-33	35-50	1.31-1.46	0.42-4.00	0.13-0.21	6.0-9.0	0.5-1.0	.32	.32			
	23-33				---	---	---	---	---	---	---			
203:														
Anawalt	0-3	26-50	38-47	28-32	1.29-1.43	4.00-14.00	0.10-0.15	3.0-5.9	0.2-0.5	.17	.32	1	7	38
	3-7	5-42	20-35	43-60	1.34-1.50	0.42-1.40	0.09-0.19	6.0-9.0	0.1-0.4	.10	.17			
	7-18	5-43	20-35	45-60	1.40-1.55	0.42-1.40	0.08-0.19	6.0-9.0	0.0-0.3	.15	.24			
	18-28				---	---	---	---	---	---	---			
204:														
Anawalt	0-3	26-50	38-47	12-27	1.29-1.43	4.00-14.00	0.10-0.15	0.0-5.9	0.2-0.5	.10	.43	1	7	38
	3-7	5-42	30-35	28-60	1.34-1.50	0.42-4.00	0.09-0.19	3.0-9.0	0.1-0.4	.15	.28			
	7-18	5-43	22-35	35-60	1.40-1.55	0.42-1.40	0.08-0.19	3.0-9.0	0.0-0.3	.17	.28			
	18-28				---	---	---	---	---	---	---			
205:														
Anawalt	0-3	26-50	38-47	12-27	1.29-1.43	4.00-14.00	0.10-0.15	0.0-5.9	0.2-0.5	.20	.43	1	6	48
	3-7	5-42	20-35	28-60	1.34-1.50	0.42-4.00	0.09-0.19	3.0-9.0	0.1-0.4	.15	.28			
	7-18	5-43	22-35	35-60	1.40-1.55	0.42-1.40	0.08-0.19	3.0-9.0	0.0-0.3	.20	.32			
	18-28				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
205:														
Freznik	0-2	35-45	30-42	18-24	1.11-1.30	4.00-14.00	0.08-0.09	3.0-3.0	0.5-1.5	.15	.43	2	8	0
	2-11	20-40	20-40	40-60	1.25-1.45	0.01-0.42	0.14-0.16	6.0-9.0	0.1-0.5	.24	.24			
	11-17	20-40	20-40	40-60	1.25-1.45	0.01-0.42	0.14-0.16	6.0-9.0	0.1-0.5	.24	.24			
	17-23	20-40	20-40	40-60	1.25-1.40	0.01-0.42	0.14-0.16	6.0-9.0	0.1-0.5	.28	.28			
	23-31	25-40	25-40	30-40	1.40-1.60	0.42-1.40	0.14-0.16	6.0-9.0	0.1-0.5	.37	.37			
	31-41				---	---	---	---	---	---	---			
206:														
Anawalt	0-3	26-50	38-47	12-27	1.29-1.43	4.00-14.00	0.10-0.15	0.0-5.9	0.2-0.5	.24	.43	1	6	48
	3-7	5-42	30-35	28-60	1.34-1.50	0.42-4.00	0.09-0.19	3.0-9.0	0.1-0.4	.15	.28			
	7-18	5-43	22-35	35-60	1.40-1.55	0.42-1.40	0.08-0.19	3.0-9.0	0.0-0.3	.17	.28			
	18-28				---	---	---	---	---	---	---			
Oreneva	0-2	35-50	35-40	15-25	1.27-1.38	4.00-14.00	0.10-0.15	1.0-2.9	0.3-0.5	.24	.43	2	7	38
	2-10	25-50	30-45	18-30	1.33-1.44	1.40-4.00	0.14-0.21	1.0-5.9	0.1-0.3	.43	.43			
	10-21	25-50	30-45	18-30	1.34-1.45	1.40-14.00	0.08-0.14	1.0-5.9	0.1-0.2	.17	.49			
	21-31				---	---	---	---	---	---	---			
207:														
Anawalt	0-3	26-50	38-47	28-32	1.29-1.43	4.00-14.00	0.10-0.15	3.0-5.9	0.2-0.5	.17	.32	1	7	38
	3-7	5-42	20-35	43-60	1.34-1.50	0.42-1.40	0.09-0.19	6.0-9.0	0.1-0.4	.10	.17			
	7-18	5-43	20-35	45-60	1.40-1.55	0.42-1.40	0.08-0.19	6.0-9.0	0.0-0.3	.15	.24			
	18-28				---	---	---	---	---	---	---			
Raz	0-4	35-50	30-45	10-25	1.27-1.38	4.00-14.00	0.05-0.12	1.0-5.9	0.3-0.5	.10	.37	1	8	0
	4-12	30-60	18-40	20-30	1.28-1.29	4.00-14.00	0.11-0.19	1.0-5.9	0.1-0.3	.32	.32			
	12-17	30-70	15-40	12-30	1.34-1.50	1.40-4.00	0.07-0.19	0.0-5.9	0.0-0.2	.28	.28			
	17-30				---	0.01-0.42	0.00-0.00	---	---	---	---			
	30-40				---	---	---	---	---	---	---			
208:														
Anawalt	0-3	26-50	38-47	12-27	1.29-1.43	4.00-14.00	0.10-0.15	0.0-5.9	0.2-0.5	.20	.43	1	6	48
	3-7	5-42	30-35	28-60	1.34-1.50	0.42-4.00	0.09-0.19	3.0-9.0	0.1-0.4	.15	.28			
	7-18	5-43	22-35	35-60	1.40-1.55	0.42-1.40	0.08-0.19	3.0-9.0	0.0-0.3	.20	.32			
	18-28				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
209:														
Atlow	0-3	28-45	35-45	20-27	1.32-1.50	4.00-14.00	0.05-0.12	0.0-2.9	0.1-0.5	.15	.43	1	8	0
	3-11	25-70	3-40	27-35	1.32-1.67	1.40-4.00	0.06-0.14	0.0-5.9	0.1-0.5	.17	.37			
	11-21				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
210:														
Baconcamp	0-4	25-40	25-40	27-30	1.20-1.30	4.23-14.11	0.07-0.10	0.0-2.9	3.0-8.0	.05	.17	2	8	0
	4-20	35-50	30-45	18-30	1.25-1.35	4.23-14.11	0.07-0.13	0.0-2.9	1.0-4.0	.10	.24			
	20-35	25-50	25-45	18-30	1.30-1.40	4.23-14.11	0.07-0.10	0.0-2.9	1.0-2.0	.15	.43			
	35-45				---	---	---	---	---	---	---			
Clamp	0-3	25-40	25-45	27-35	1.20-1.30	1.40-4.00	0.10-0.15	3.0-5.9	2.0-4.0	.10	.37	1	8	0
	3-8	25-40	25-40	27-35	1.20-1.30	1.40-4.00	0.10-0.15	3.0-5.9	1.0-3.0	.15	.37			
	8-12	25-40	25-45	27-35	1.20-1.30	1.40-4.00	0.10-0.15	3.0-5.9	1.0-3.0	.15	.37			
	12-22				---	---	---	---	---	---	---			
211:														
Baconcamp	0-4	35-50	30-45	18-27	1.20-1.30	4.23-14.11	0.10-0.13	0.0-2.9	3.0-8.0	.10	.20	2	8	0
	4-20	35-50	35-45	18-27	1.25-1.35	4.23-14.11	0.07-0.13	0.0-2.9	1.0-4.0	.15	.24			
	20-35	25-50	25-45	18-30	1.30-1.40	4.23-14.11	0.07-0.10	0.0-2.9	1.0-2.0	.15	.43			
	35-45				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
212:														
Bluesters	0-4	83-86	5-11	5-8	0.90-1.00	42.34-141.14	0.09-0.12	0.0-2.9	2.0-3.0	.02	.05	3	2	134
	4-12	83-86	5-11	5-8	0.90-1.00	42.34-141.14	0.09-0.12	0.0-2.9	1.0-2.0	.05	.05			
	12-23	83-86	5-11	2-8	0.90-1.00	141.14-141.14	0.09-0.12	0.0-2.9	0.5-1.0	.02	.02			
	23-28	90-97	1-3	2-5	0.90-1.00	141.14-141.14	0.08-0.11	0.0-2.9	0.0-0.5	.02	.02			
	28-60	95-100	0-5	0-0	1.10-1.30	141.14-141.14	0.00-0.02	0.0-2.9	0.0-0.5	.02	.02			
213:														
Bluesters, dry	0-4	83-86	5-11	5-8	0.90-1.00	42.34-141.14	0.09-0.12	0.0-2.9	2.0-3.0	.02	.05	3	2	134
	4-12	83-86	5-11	5-8	0.90-1.00	42.34-141.14	0.09-0.12	0.0-2.9	1.0-2.0	.05	.05			
	12-23	83-86	5-11	2-8	0.90-1.00	141.14-141.14	0.09-0.12	0.0-2.9	0.5-1.0	.02	.02			
	23-28	90-97	1-3	2-5	0.90-1.00	141.14-141.14	0.08-0.11	0.0-2.9	0.0-0.5	.02	.02			
	28-60	95-100	0-5	0-0	1.10-1.30	141.14-141.14	0.00-0.02	0.0-2.9	0.0-0.5	.02	.02			
214:														
Boilout	0-3	54-65	27-30	8-16	1.00-1.35	14.00-42.00	0.16-0.21	0.0-2.9	0.3-0.5	.24	.43	2	4	86
	3-6	55-76	14-27	10-18	1.00-1.35	4.00-14.00	0.20-0.24	0.0-2.9	0.2-0.4	.37	.55			
	6-11	23-50	30-45	20-32	1.00-1.35	1.40-14.00	0.23-0.32	3.0-5.9	0.1-0.3	.37	.37			
	11-16	29-50	35-45	15-26	1.00-1.35	4.00-14.00	0.13-0.22	0.0-5.9	0.0-0.2	.43	.43			
	16-34				---	0.01-0.42	0.00-0.00	---	---	---	---			
	34-59				---	0.01-0.42	0.00-0.00	---	---	---	---			
	59-62				---	0.01-0.42	0.00-0.00	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
215:														
Bonnick	0-3	75-82	8-18	2-10	1.00-1.35	42.00-141.00	0.08-0.11	1.0-2.9	1.0-3.0	.10	.15	4	1	220
	3-10	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	1.0-3.0	.10	.10			
	10-28	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	28-42	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	42-45	75-85	8-13	2-12	1.00-1.35	42.00-141.00	0.02-0.08	0.0-2.9	0.5-1.0	.05	.20			
	45-60	90-100	0-8	0-2	1.00-1.35	141.00-141.00	0.01-0.04	0.0-2.9	0.0-0.0	.02	.02			
216:														
Bonnick	0-3	60-80	8-30	2-12	1.00-1.35	42.00-141.00	0.08-0.11	1.0-2.9	1.0-3.0	.10	.15	4	4	86
	3-10	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	1.0-3.0	.10	.10			
	10-28	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	28-42	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	42-45	75-85	8-13	2-12	1.00-1.35	42.00-141.00	0.02-0.08	0.0-2.9	0.5-1.0	.05	.20			
	45-60	90-100	0-8	0-2	1.00-1.35	141.00-141.00	0.01-0.04	0.0-2.9	0.0-0.0	.02	.02			
217:														
Bonnick	0-3	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.09-0.11	1.0-2.9	1.0-3.0	.10	.10	4	1	220
	3-10	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	1.0-3.0	.10	.10			
	10-28	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	28-42	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	42-45	75-85	8-13	2-12	1.00-1.35	42.00-141.00	0.02-0.08	0.0-2.9	0.5-1.0	.05	.20			
	45-60	90-100	0-8	0-2	1.00-1.35	141.00-141.00	0.01-0.04	0.0-2.9	0.0-0.0	.02	.02			
Fort Rock	0-5	75-85	6-20	2-12	1.00-1.35	42.00-141.00	0.05-0.08	0.0-2.9	1.0-2.0	.05	.05	3	1	220
	5-16	78-85	13-18	5-12	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-1.0	.10	.17			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			
218:														
Bonnick	0-3	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.06-0.11	1.0-2.9	1.0-3.0	.02	.05	4	2	134
	3-10	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	1.0-3.0	.10	.10			
	10-28	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	28-42	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	42-45	75-85	8-13	2-12	1.00-1.35	42.00-141.00	0.02-0.08	0.0-2.9	0.5-1.0	.05	.20			
	45-60	90-100	0-8	0-2	1.00-1.35	141.00-141.00	0.01-0.04	0.0-2.9	0.0-0.0	.02	.02			
Fort Rock	0-5	70-75	13-24	6-15	1.00-1.35	42.00-141.00	0.08-0.10	0.0-2.9	1.0-2.0	.05	.15	3	5	56
	5-16	78-85	13-18	5-12	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-1.0	.10	.17			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
219:														
Bonnick, low precipitation	0-3	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.06-0.11	0.0-2.9	1.0-3.0	.05	.10	4	2	134
	3-10	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	1.0-3.0	.10	.10			
	10-28	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	28-42	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	42-45	75-85	8-13	2-12	1.00-1.35	42.00-141.00	0.02-0.08	0.0-2.9	0.5-1.0	.05	.20			
	45-60	90-100	0-8	0-2	1.00-1.35	141.00-141.00	0.01-0.04	0.0-2.9	0.0-0.0	.02	.02			
Fort Rock, low precipitation	0-5	30-50	30-48	10-25	1.00-1.35	4.00-14.00	0.07-0.15	0.0-2.9	1.0-2.0	.10	.24	3	7	38
	5-16	78-85	13-18	5-12	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-1.0	.10	.17			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			
220:														
Bonnick	0-3	75-85	5-20	2-10	1.00-1.35	42.00-141.00	0.08-0.11	1.0-2.9	1.0-3.0	.10	.15	4	1	220
	3-10	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	1.0-3.0	.10	.10			
	10-28	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	28-42	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	42-45	75-85	8-13	2-12	1.00-1.35	42.00-141.00	0.02-0.08	0.0-2.9	0.5-1.0	.05	.20			
	45-60	90-100	0-8	0-2	1.00-1.35	141.00-141.00	0.01-0.04	0.0-2.9	0.0-0.0	.02	.02			
Kunceider	0-5	80-85	5-10	5-10	0.92-1.23	14.00-42.00	0.07-0.12	0.0-2.9	2.0-3.0	.17	.17	1	1	220
	5-9	80-85	5-10	5-10	0.94-1.30	14.00-42.00	0.03-0.08	0.0-2.9	1.0-2.0	.05	.24			
	9-14	65-85	10-20	5-15	0.98-1.34	14.00-42.00	0.03-0.12	0.0-2.9	0.1-0.5	.05	.28			
	14-24				---	---	---	---	---	---	---			
221:														
Bonnick	0-3	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.09-0.11	1.0-2.9	1.0-3.0	.10	.10	4	1	220
	3-10	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	1.0-3.0	.10	.10			
	10-28	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	28-42	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	42-45	75-85	8-13	2-12	1.00-1.35	42.00-141.00	0.02-0.08	0.0-2.9	0.5-1.0	.05	.20			
	45-60	90-100	0-8	0-2	1.00-1.35	141.00-141.00	0.01-0.04	0.0-2.9	0.0-0.0	.02	.02			
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
222:														
Booth	0-4	30-50	30-45	20-25	1.25-1.35	4.00-14.00	0.08-0.11	0.0-2.9	1.0-3.0	.15	.37	2	8	0
	4-24	10-30	20-45	45-60	1.35-1.45	0.42-1.40	0.13-0.16	6.0-9.0	0.5-2.0	.24	.24			
	24-26				---	---	---	---	---	---	---			
	26-36				---	---	---	---	---	---	---			
223:														
Booth	0-4	30-50	30-45	20-25	1.25-1.35	4.00-14.00	0.08-0.11	0.0-2.9	1.0-3.0	.15	.37	2	8	0
	4-24	10-30	20-45	45-60	1.35-1.45	0.42-1.40	0.13-0.16	6.0-9.0	0.5-2.0	.24	.24			
	24-26				---	---	---	---	---	---	---			
	26-36				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
224:														
Borobey	0-4	50-70	9-30	2-15	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.37	.37	5	2	134
	4-12	75-85	6-20	2-20	1.00-1.35	42.00-141.00	0.08-0.27	0.0-2.9	1.0-3.0	.28	.28			
	12-50	57-87	9-15	4-18	1.00-1.35	1.40-42.00	0.10-0.23	0.0-2.9	0.1-1.0	.37	.37			
	50-68	60-85	12-25	3-18	1.00-1.35	14.00-141.00	0.05-0.23	0.0-2.9	0.1-1.0	.15	.15			
225:														
Borobey	0-4	80-87	8-13	2-8	1.00-1.35	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.5	.15	.15	5	1	220
	4-12	75-85	6-20	2-20	1.00-1.35	42.00-141.00	0.08-0.27	0.0-2.9	1.0-3.0	.28	.28			
	12-50	57-87	9-15	4-18	1.00-1.35	1.40-42.00	0.10-0.23	0.0-2.9	0.1-1.0	.37	.37			
	50-68	60-85	12-25	3-18	1.00-1.35	14.00-141.00	0.05-0.23	0.0-2.9	0.1-1.0	.15	.15			
226:														
Borobey	0-4	60-75	10-30	2-10	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.28	.28	5	2	134
	4-12	75-85	6-20	2-20	1.00-1.35	42.00-141.00	0.08-0.27	0.0-2.9	1.0-3.0	.28	.28			
	12-50	57-87	9-15	4-18	1.00-1.35	1.40-42.00	0.10-0.23	0.0-2.9	0.1-1.0	.37	.37			
	50-68	60-85	12-25	3-18	1.00-1.35	14.00-141.00	0.05-0.23	0.0-2.9	0.1-1.0	.15	.15			
227:														
Borobey	0-4	60-75	10-30	2-10	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.28	.28	5	2	134
	4-12	75-85	6-20	2-20	1.00-1.35	42.00-141.00	0.08-0.27	0.0-2.9	1.0-3.0	.28	.28			
	12-50	57-87	9-15	4-18	1.00-1.35	1.40-42.00	0.10-0.23	0.0-2.9	0.1-1.0	.37	.37			
	50-68	60-85	12-25	3-18	1.00-1.35	14.00-141.00	0.05-0.23	0.0-2.9	0.1-1.0	.15	.15			
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
228:														
Borobey--------------	0-4	60-75	10-30	2-10	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.28	.28	5	2	134
	4-12	75-85	6-20	2-20	1.00-1.35	42.00-141.00	0.08-0.27	0.0-2.9	1.0-3.0	.28	.28			
	12-50	57-87	9-15	4-18	1.00-1.35	1.40-42.00	0.10-0.23	0.0-2.9	0.1-1.0	.37	.37			
	50-68	60-85	12-25	3-18	1.00-1.35	14.00-141.00	0.05-0.23	0.0-2.9	0.1-1.0	.15	.15			
Oatmanflat-----------	0-3	55-75	10-35	10-20	1.00-1.35	14.00-42.00	0.16-0.20	1.0-2.9	1.0-3.0	.24	.24	3	2	134
	3-12	50-75	10-30	10-25	1.00-1.35	4.00-42.00	0.13-0.18	1.0-2.9	0.5-1.5	.24	.24			
	12-28	55-75	10-35	8-20	1.00-1.35	14.00-42.00	0.22-0.25	1.0-2.9	0.2-0.5	.28	.28			
	28-44	40-65	15-40	18-35	1.00-1.35	4.00-42.00	0.14-0.23	1.0-5.9	0.2-0.5	.28	.28			
	44-53	40-65	15-40	18-35	1.00-1.35	4.00-42.00	0.14-0.23	1.0-5.9	0.2-0.5	.24	.37			
	53-64				---	0.01-0.42	0.00-0.00	---	---	---	---			
229:														
Borobey--------------	0-4	80-87	8-13	2-8	1.00-1.35	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.5	.15	.15	5	1	220
	4-12	75-85	6-20	2-20	1.00-1.35	42.00-141.00	0.08-0.27	0.0-2.9	1.0-3.0	.28	.28			
	12-50	57-87	9-15	4-18	1.00-1.35	1.40-42.00	0.10-0.23	0.0-2.9	0.1-1.0	.37	.37			
	50-68	60-85	12-25	3-18	1.00-1.35	14.00-141.00	0.05-0.23	0.0-2.9	0.1-1.0	.15	.15			
Overallflat----------	0-4	55-75	15-25	12-18	0.98-1.33	14.00-42.00	0.23-0.26	1.0-2.9	0.3-0.5	.49	.49	3	2	134
	4-7	10-25	55-65	20-25	0.99-1.34	1.40-4.00	0.29-0.32	1.0-5.9	0.1-0.3	.55	.55			
	7-14	10-40	30-52	30-45	0.99-1.35	0.42-1.40	0.21-0.32	3.0-8.9	0.0-0.2	.37	.37			
	14-26	50-70	5-15	20-34	0.99-1.35	1.40-4.00	0.20-0.24	3.0-5.9	0.0-0.2	.15	.24			
	26-60	70-90	10-20	5-10	0.99-1.35	14.00-141.00	0.02-0.23	0.0-2.9	0.0-0.2	.32	.32			
230:														
Brabble--------------	0-3	50-75	5-15	20-30	1.53-1.64	1.40-4.00	0.09-0.14	3.0-5.9	0.3-0.5	.10	.17	2	6	48
	3-9	50-75	5-15	20-30	1.54-1.65	1.40-4.00	0.11-0.15	3.0-5.9	0.2-0.4	.20	.20			
	9-26	35-50	30-40	20-35	1.33-1.52	1.40-14.00	0.11-0.20	3.0-5.9	0.1-0.3	.32	.32			
	26-33	25-50	30-40	20-35	1.34-1.52	1.40-14.00	0.10-0.18	3.0-5.9	0.0-0.2	.43	.43			
	33-38				---	0.01-0.42	0.00-0.00	---	---	---	---			
	38-48				---	---	---	---	---	---	---			
Calderwood-----------	0-2	85-95	1-5	2-5	1.37-1.46	14.00-42.00	0.02-0.04	0.0-2.9	1.0-2.0	.02	.10	1	2	134
	2-10	25-50	30-40	20-35	1.32-1.55	1.40-14.00	0.07-0.14	0.0-5.9	0.1-0.5	.17	.37			
	10-20				---	---	---	---	---	---	---			
231:														
Brace----------------	0-10	35-50	30-45	10-25	1.27-1.38	4.00-14.00	0.10-0.15	0.0-5.9	0.3-0.5	.20	.43	2	7	38
	10-14	25-70	10-40	20-35	1.33-1.64	1.40-14.00	0.09-0.19	3.0-5.9	0.1-0.3	.20	.43			
	14-22	28-50	30-42	20-30	1.41-1.52	1.40-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.20	.37			
	22-26				---	0.01-0.42	0.00-0.00	---	---	---	---			
	26-36				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
231:														
Foleylake	0-2	35-50	39-47	10-18	1.36-1.41	4.00-14.00	0.07-0.12	0.0-2.9	0.3-0.5	.10	.37	2	7	38
	2-8	35-50	38-45	12-20	1.36-1.45	4.00-14.00	0.07-0.12	0.0-2.9	0.2-0.4	.15	.49			
	8-18	15-40	20-35	40-50	1.35-1.55	0.01-0.42	0.10-0.14	6.0-9.0	0.1-0.3	.15	.24			
	18-23	18-40	32-42	28-40	1.34-1.47	1.40-4.00	0.12-0.18	3.0-5.9	0.0-0.2	.20	.43			
	23-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
232:														
Bridgewell	0-3	28-50	40-45	10-27	1.00-1.35	4.00-14.00	0.23-0.27	0.0-5.9	4.0-8.0	.32	.32	5	5	56
	3-23	25-47	30-50	18-35	1.00-1.35	1.40-14.00	0.23-0.32	3.0-5.9	4.0-12	.28	.28			
	23-36	5-47	35-65	18-35	1.00-1.35	1.40-14.00	0.23-0.32	3.0-5.9	1.0-3.0	.49	.49			
	36-60	5-47	35-60	18-35	1.00-1.35	1.40-14.00	0.23-0.32	3.0-5.9	0.5-1.0	.43	.43			
233:														
Bridgewell	0-2	60-85	5-30	4-14	1.00-1.35	14.00-42.00	0.17-0.20	0.0-2.9	0.3-1.5	.28	.28	5	2	134
	2-12	20-40	30-60	20-30	1.15-1.30	1.40-14.00	0.16-0.18	3.0-5.9	0.2-0.6	.55	.55			
	12-60	20-70	20-60	10-18	1.38-1.41	4.00-42.00	0.15-0.17	0.0-2.9	0.2-0.4	.43	.43			
234:														
Bullump, south	0-3	30-50	30-45	15-25	1.20-1.30	4.23-14.11	0.05-0.08	0.0-2.9	2.0-4.0	.05	.24	5	8	0
	3-11	30-50	35-45	18-26	1.20-1.30	4.23-14.11	0.05-0.08	0.0-2.9	1.0-3.0	.05	.37			
	11-42	25-35	35-40	25-35	1.35-1.45	1.41-4.23	0.09-0.14	0.0-2.9	0.5-2.0	.10	.32			
	42-60	30-50	35-45	15-25	1.35-1.45	4.23-14.11	0.05-0.09	0.0-2.9	0.5-1.0	.05	.32			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Nuss, south	0-3	30-50	35-45	15-25	1.19-1.34	4.00-14.00	0.10-0.15	0.0-2.9	1.0-2.0	.20	.43	1	7	38
	3-17	25-45	35-40	20-35	1.21-1.29	4.00-14.00	0.10-0.20	1.0-5.9	0.8-1.5	.37	.37			
	17-27				---	---	---	---	---	---	---			
236:														
Bunyard	0-2	15-30	55-70	15-25	1.00-1.35	4.00-14.00	0.26-0.31	0.0-5.9	0.5-1.0	.55	.55	5	5	56
	2-6	11-35	30-50	35-45	1.22-1.32	0.42-4.00	0.15-0.37	6.0-9.0	0.5-1.0	.32	.32			
	6-16	25-55	20-40	25-35	1.20-1.42	1.40-4.00	0.15-0.37	3.0-5.9	0.5-1.0	.28	.28			
	16-40	60-85	5-20	5-20	1.00-1.35	4.00-141.00	0.08-0.22	0.0-2.9	0.2-0.5	.49	.49			
	40-60	60-85	10-20	5-20	1.00-1.35	4.00-141.00	0.12-0.24	0.0-2.9	0.1-0.4	.43	.43			
237:														
Cabinspring	0-8	30-50	30-45	12-20	1.00-1.25	4.00-14.00	0.18-0.21	0.0-2.9	2.0-4.0	.15	.32	2	5	56
	8-12	30-50	30-45	12-20	1.00-1.25	4.00-14.00	0.08-0.18	0.0-2.9	2.0-4.0	.20	.49			
	12-24	30-50	30-45	12-20	1.00-1.25	4.00-14.00	0.08-0.18	3.0-5.9	2.0-4.0	.20	.55			
	24-30	25-45	25-45	24-35	1.00-1.25	1.40-4.00	0.08-0.21	3.0-5.9	0.5-3.0	.15	.55			
	30-36	20-40	20-35	40-50	1.20-1.35	0.42-1.40	0.03-0.06	3.0-5.9	0.2-1.0	.05	.28			
	36-46				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
237:														
Chesebro-------------	0-4	35-45	35-55	12-20	0.72-1.05	4.00-14.00	0.11-0.15	0.0-2.9	2.0-4.0	.10	.43	5	6	48
	4-24	35-45	35-55	12-20	0.72-1.05	4.00-14.00	0.08-0.17	0.0-2.9	2.0-4.0	.10	.43			
	24-60	30-55	25-40	22-32	0.99-1.30	4.00-14.00	0.08-0.20	3.0-5.9	0.5-2.0	.10	.49			
Hayespring-----------	0-5	35-50	30-45	14-20	1.00-1.35	4.00-14.00	0.17-0.23	1.0-2.9	1.0-3.0	.24	.49	5	5	56
	5-13	30-50	30-45	14-20	1.00-1.35	4.00-14.00	0.17-0.23	1.0-2.9	1.0-3.0	.24	.49			
	13-37	25-55	20-40	25-35	1.00-1.35	4.00-14.00	0.14-0.22	1.0-5.9	0.6-2.0	.15	.37			
	37-60	80-85	5-15	6-18	1.55-1.65	14.00-141.00	0.03-0.08	1.0-2.9	0.4-0.8	.02	.05			
238:														
Calderwood-----------	0-2	85-95	1-5	2-5	1.37-1.46	14.00-42.00	0.02-0.04	0.0-2.9	1.0-2.0	.02	.10	1	2	134
	2-10	25-50	30-40	20-35	1.32-1.55	1.40-14.00	0.07-0.14	0.0-5.9	0.1-0.5	.17	.37			
	10-20				---	---	---	---	---	---	---			
McConnel-------------	0-1	55-75	10-35	5-10	1.50-1.90	14.00-42.00	0.04-0.08	1.0-2.9	0.2-1.0	.10	.24	5	6	48
	1-12	40-75	15-40	5-15	1.50-1.90	14.00-42.00	0.11-0.18	1.0-2.9	0.2-0.5	.24	.24			
	12-18	60-90	4-30	5-15	1.80-2.00	14.00-42.00	0.01-0.10	1.0-2.9	0.2-0.4	.10	.17			
	18-60	80-95	2-10	3-10	1.80-2.00	42.00-141.00	0.01-0.05	1.0-2.9	0.2-0.3	.02	.02			
239:														
Carryback, eroded----	0-2	30-45	30-45	20-25	1.30-1.50	4.23-14.11	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	2	8	0
	2-8	5-40	30-65	27-35	1.30-1.50	1.41-4.23	0.15-0.17	3.0-5.9	1.0-2.0	.37	.37			
	8-15	10-40	20-50	40-60	1.40-1.60	0.42-1.41	0.12-0.16	6.0-8.9	0.5-1.0	.24	.24			
	15-33	5-50	30-60	20-30	1.30-1.50	4.23-14.11	0.13-0.16	0.0-2.9	0.0-0.5	.43	.43			
	33-43				---	---	---	---	---	---	---			
240:														
Carryback------------	0-3	25-40	25-45	27-35	1.30-1.50	4.23-14.11	0.07-0.10	3.0-5.9	1.0-3.0	.10	.32	2	8	0
	3-7	5-40	30-65	20-35	1.30-1.50	4.00-14.00	0.12-0.16	3.0-5.9	1.0-3.0	.43	.43			
	7-11	10-40	25-50	40-60	1.40-1.60	0.42-1.41	0.12-0.16	6.0-9.0	0.5-1.0	.24	.24			
	11-17	10-40	25-60	40-60	1.40-1.60	0.42-1.40	0.12-0.16	6.0-9.0	0.2-1.0	.24	.24			
	17-24	10-40	10-60	40-60	1.40-1.60	0.42-1.40	0.12-0.16	6.0-9.0	0.2-1.0	.24	.24			
	24-34				---	---	---	---	---	---	---			
241:														
Carryback------------	0-3	25-40	22-45	27-35	1.30-1.50	4.23-14.11	0.07-0.10	3.0-5.9	1.0-3.0	.05	.37	2	8	0
	3-7	5-40	30-65	20-35	1.30-1.50	4.00-14.00	0.12-0.16	3.0-5.9	1.0-3.0	.43	.43			
	7-11	10-40	25-50	40-60	1.40-1.60	0.42-1.41	0.12-0.16	6.0-9.0	0.5-1.0	.24	.24			
	11-17	10-40	25-60	40-60	1.40-1.60	0.42-1.40	0.12-0.16	6.0-9.0	0.2-1.0	.24	.24			
	17-24	10-40	10-60	40-60	1.40-1.60	0.42-1.40	0.12-0.16	6.0-9.0	0.2-1.0	.24	.24			
	24-34				---	---	---	---	---	---	---			
Pearlwise------------	0-6	25-40	20-45	20-30	1.12-1.25	1.40-4.00	0.17-0.21	3.0-5.9	1.0-3.0	.32	.32	2	6	48
	6-22	25-45	20-50	20-35	1.12-1.25	1.40-4.00	0.14-0.21	3.0-5.9	1.0-3.0	.37	.37			
	22-37				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
242:														
Carvix	0-6	5-30	55-68	15-27	1.14-1.40	4.00-14.00	0.16-0.21	0.0-5.9	1.0-2.0	.49	.49	5	5	56
	6-19	5-50	35-68	15-27	1.21-1.41	4.00-14.00	0.13-0.21	0.0-5.9	1.0-2.0	.43	.43			
	19-60	25-50	32-45	18-30	1.26-1.48	4.00-14.00	0.13-0.21	0.0-5.9	0.5-1.0	.32	.32			
243:														
Catlow	0-3	55-70	20-35	6-15	1.20-1.30	14.00-42.00	0.09-0.11	0.0-2.9	0.2-0.5	.17	.28	5	5	56
	3-21	55-75	13-20	10-25	1.20-1.30	14.00-42.00	0.02-0.10	0.0-2.9	0.1-0.4	.05	.28			
	21-30	55-85	10-30	5-15	1.40-1.55	1.40-4.20	0.00-0.08	0.0-2.9	0.1-0.4	.05	.28			
	30-60	55-90	12-35	3-10	1.20-1.40	14.00-141.00	0.00-0.07	0.0-2.9	0.1-0.3	.05	.24			
244:														
Catlow	0-3	60-75	17-25	6-15	1.20-1.30	14.00-42.00	0.04-0.08	0.0-2.9	0.2-0.5	.05	.17	5	6	48
	3-21	55-75	13-20	10-25	1.20-1.30	14.00-42.00	0.02-0.10	0.0-2.9	0.1-0.4	.05	.28			
	21-30	55-85	10-30	5-15	1.40-1.55	1.40-4.20	0.00-0.08	0.0-2.9	0.1-0.4	.05	.28			
	30-60	55-90	12-35	3-10	1.20-1.40	14.00-141.00	0.00-0.07	0.0-2.9	0.1-0.3	.05	.24			
Davey	0-3	79-85	12-13	3-8	1.51-1.59	42.00-141.00	0.05-0.08	0.0-2.9	0.1-0.5	.15	.15	5	2	134
	3-23	65-70	19-25	5-16	1.48-1.59	14.00-42.00	0.09-0.15	0.0-2.9	0.1-0.3	.24	.24			
	23-60	80-95	0-10	5-10	1.53-1.65	42.00-141.00	0.04-0.11	0.0-2.9	0.0-0.3	.24	.24			
245:														
Catnapp	0-5	35-50	40-42	10-18	1.28-1.43	4.00-14.00	0.03-0.06	0.0-5.9	0.5-1.0	.05	.43	2	8	0
	5-7	40-70	22-35	14-24	1.43-1.49	14.00-42.00	0.12-0.15	0.0-5.9	0.2-0.5	.43	.43			
	7-14	15-30	25-35	35-50	1.38-1.41	0.42-1.40	0.11-0.21	6.0-11.0	0.1-0.2	.28	.28			
	14-25	15-30	30-35	35-50	1.38-1.41	0.42-1.40	0.11-0.21	6.0-11.0	0.1-0.2	.32	.32			
	25-35				---	---	---	---	---	---	---			
246:														
Chancelakes	0-1	5-35	57-75	8-20	1.11-1.36	4.00-14.00	0.38-0.42	0.0-2.9	0.1-0.5	.64	.64	5	4	86
	1-10	5-40	25-50	35-45	1.40-1.49	0.42-1.40	0.14-0.21	3.0-9.0	0.1-0.4	.28	.28			
	10-29	10-40	23-50	35-60	1.40-1.52	0.01-1.40	0.12-0.20	3.0-13.0	0.1-0.3	.24	.24			
	29-58	5-40	25-40	35-60	1.40-1.50	0.01-1.40	0.12-0.20	3.0-13.0	0.1-0.2	.32	.32			
	58-63	25-65	5-35	30-40	1.28-1.53	1.40-4.00	0.26-0.39	3.0-9.0	0.1-0.1	.20	.20			
Silverash	0-2	50-70	20-35	10-18	0.95-1.35	14.00-42.00	0.20-0.23	1.0-2.9	0.5-1.0	.37	.37	5	2	134
	2-8	30-50	30-60	10-18	1.00-1.35	14.00-42.00	0.24-0.27	1.0-2.9	0.2-0.8	.43	.43			
	8-21	20-70	20-40	35-50	1.25-1.50	0.42-1.40	0.14-0.16	6.0-9.0	0.2-0.6	.24	.24			
	21-62	30-70	10-30	18-35	1.30-1.60	1.40-42.00	0.14-0.16	1.0-5.9	0.2-0.6	.20	.20			
247:														
Chen	0-2	28-50	36-45	10-27	1.19-1.36	4.00-14.00	0.05-0.12	0.0-2.9	1.0-3.0	.15	.37	1	8	0
	2-6	25-50	37-43	10-26	1.21-1.36	1.40-14.00	0.05-0.14	0.0-6.0	1.0-2.0	.15	.37			
	6-17	10-40	22-35	38-55	1.33-1.46	0.01-4.00	0.05-0.13	3.0-9.0	0.5-1.0	.10	.28			
	17-27				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
247:														
Erakatak	0-3	55-70	19-25	10-20	1.05-1.29	14.00-42.00	0.01-0.05	0.0-2.9	1.0-3.0	.02	.20	2	7	38
	3-11	25-45	35-41	20-35	1.15-1.40	1.40-14.00	0.05-0.14	3.0-5.9	1.0-3.0	.10	.32			
	11-20	20-40	25-35	35-40	1.20-1.40	1.40-4.00	0.05-0.14	6.0-9.0	0.5-2.0	.10	.32			
	20-27	20-40	25-35	40-45	1.20-1.40	0.42-1.40	0.05-0.14	6.0-9.0	0.5-2.0	.05	.28			
	27-37				---	---	---	---	---	---	---			
Lambring, north	0-5	55-70	20-30	8-15	1.22-1.27	14.00-42.00	0.04-0.08	0.0-2.9	2.0-3.0	.05	.20	3	6	48
	5-20	55-70	20-26	10-18	1.22-1.27	14.00-42.00	0.04-0.08	0.0-2.9	2.0-3.0	.05	.20			
	20-50	45-85	10-32	5-15	1.36-1.59	14.00-42.00	0.01-0.05	0.0-2.9	0.1-0.5	.05	.24			
	50-60				---	---	---	---	---	---	---			
248:														
Chesebro	0-4	35-45	35-55	12-20	0.72-1.05	4.00-14.00	0.11-0.15	0.0-2.9	2.0-4.0	.10	.43	5	6	48
	4-24	35-45	35-55	12-20	0.72-1.05	4.00-14.00	0.08-0.17	0.0-2.9	2.0-4.0	.10	.43			
	24-60	30-55	25-40	22-32	0.99-1.30	4.00-14.00	0.08-0.20	3.0-5.9	0.5-2.0	.10	.49			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
249:														
Cinderfall	0-3	84-86	4-9	5-12	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	1.0-3.0	.02	.02	3	1	220
	3-21	84-88	4-9	5-12	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	1.0-3.0	.02	.02			
	21-62	60-75	15-25	10-15	1.00-1.35	14.00-42.00	0.07-0.17	0.0-2.9	0.5-1.0	.05	.43			
	62-68	90-98	1-5	1-5	1.00-1.35	42.00-141.00	0.02-0.07	0.0-2.9	0.1-0.5	.05	.49			
Fort Rock	0-5	75-85	5-22	4-12	1.00-1.35	42.00-141.00	0.03-0.07	0.0-2.9	1.0-2.0	.02	.05	3	2	134
	5-16	78-85	13-18	5-12	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-1.0	.10	.17			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			
Kunceider	0-5	80-85	5-10	5-10	0.92-1.23	14.00-42.00	0.06-0.09	0.0-2.9	2.0-3.0	.10	.17	1	1	220
	5-9	80-85	5-10	5-10	0.94-1.30	14.00-42.00	0.03-0.08	0.0-2.9	1.0-2.0	.05	.24			
	9-14	65-85	10-20	5-15	0.98-1.34	14.00-42.00	0.03-0.12	0.0-2.9	0.1-0.5	.05	.28			
	14-24				---	---	---	---	---	---	---			
250:														
Cleavage	0-7	30-50	30-45	15-22	1.12-1.25	4.00-14.00	0.05-0.12	0.0-5.9	1.0-3.0	.15	.37	1	7	38
	7-11	30-50	25-45	23-35	1.20-1.30	1.40-4.00	0.05-0.15	3.0-5.9	0.5-1.0	.15	.37			
	11-21				---	---	---	---	---	---	---			
Ninemile	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.10-0.16	1.0-2.9	1.0-3.0	.24	.43	1	6	48
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
250:														
Westbutte	0-3	30-50	30-45	15-22	1.12-1.25	4.00-14.00	0.05-0.12	3.0-5.9	1.0-3.0	.10	.32	2	7	38
	3-11	30-50	25-45	18-30	1.20-1.25	1.40-14.00	0.05-0.13	3.0-5.9	1.0-3.0	.10	.37			
	11-21	30-50	25-45	18-30	1.20-1.30	1.40-14.00	0.05-0.15	3.0-5.9	0.6-2.0	.10	.37			
	21-31				---	---	---	---	---	---	---			
251:														
Cleet	0-2	55-70	20-29	12-20	1.29-1.34	14.00-42.00	0.04-0.08	0.0-2.9	0.5-1.0	.10	.32	1	6	48
	2-15	35-70	29-46	18-25	1.34-1.43	4.00-14.00	0.05-0.12	3.0-5.9	0.2-0.5	.15	.37			
	15-60				---	0.01-0.42	0.00-0.00	---	---	---	---			
252:														
Clurde	0-3	30-45	30-45	10-22	1.27-1.46	4.00-14.00	0.14-0.18	0.0-2.9	0.1-0.5	.43	.43	5	6	48
	3-12	15-50	32-63	18-30	1.27-1.51	1.40-4.00	0.14-0.21	3.0-5.9	0.1-0.5	.55	.55			
	12-38	25-80	5-47	15-30	1.28-1.69	1.40-4.00	0.03-0.19	3.0-6.0	0.1-0.3	.37	.37			
	38-62	25-80	5-47	15-30	1.29-1.69	1.40-4.00	0.05-0.20	3.0-6.0	0.1-0.3	.37	.37			
253:														
Clurde	0-3	5-35	55-68	10-27	1.27-1.46	4.00-14.00	0.13-0.17	0.0-6.0	0.1-0.5	.55	.55	5	5	56
	3-12	15-50	32-63	18-30	1.27-1.51	1.40-14.00	0.14-0.21	0.0-6.0	0.1-0.5	.49	.49			
	12-38	25-80	5-47	15-30	1.28-1.69	1.40-42.00	0.03-0.19	0.0-6.0	0.1-0.3	.37	.37			
	38-62	25-80	5-47	15-30	1.29-1.69	1.40-42.00	0.05-0.20	0.0-6.0	0.1-0.3	.32	.32			
Toll	0-15	80-85	5-15	3-10	1.43-1.50	42.00-141.00	0.07-0.09	1.0-2.9	0.2-0.6	.15	.15	5	2	134
	15-40	80-95	5-15	3-10	1.43-1.50	42.00-141.00	0.05-0.08	1.0-2.9	0.2-0.6	.20	.20			
	40-60	80-95	5-15	2-10	1.43-1.50	42.00-141.00	0.03-0.06	1.0-2.9	0.2-0.6	.05	.10			
254:														
Connleyhills	0-4	55-70	25-30	5-15	1.18-1.34	14.00-42.00	0.20-0.25	0.0-2.9	1.0-3.0	.28	.28	2	2	134
	4-11	55-75	17-27	8-18	1.30-1.40	14.00-42.00	0.18-0.25	0.0-2.9	1.0-2.0	.28	.28			
	11-15	25-40	33-35	27-40	1.19-1.34	1.40-4.00	0.24-0.35	3.0-5.9	0.5-1.5	.10	.32			
	15-22	5-40	20-35	40-60	1.38-1.51	0.42-1.40	0.06-0.10	6.0-8.9	0.5-1.0	.10	.28			
	22-29	15-40	20-35	40-50	1.34-1.51	0.42-1.40	0.11-0.16	6.0-8.9	0.5-1.0	.24	.24			
	29-32	25-40	29-35	27-40	1.23-1.36	1.40-4.00	0.24-0.34	3.0-5.9	0.1-0.5	.10	.32			
	32-42				---	---	---	---	---	---	---			
255:														
Connleyhills	0-4	30-50	30-45	10-20	1.18-1.34	4.00-14.00	0.15-0.21	0.0-2.9	1.0-3.0	.20	.37	2	6	48
	4-11	55-75	17-27	8-18	1.30-1.40	14.00-42.00	0.18-0.25	0.0-2.9	1.0-2.0	.28	.28			
	11-15	25-40	33-35	27-40	1.19-1.34	1.40-4.00	0.24-0.35	3.0-5.9	0.5-1.5	.10	.32			
	15-22	5-40	20-35	40-60	1.38-1.51	0.42-1.40	0.06-0.10	6.0-8.9	0.5-1.0	.10	.28			
	22-29	15-40	20-35	40-50	1.34-1.51	0.42-1.40	0.11-0.16	6.0-8.9	0.5-1.0	.24	.24			
	29-32	25-40	29-35	27-40	1.23-1.36	1.40-4.00	0.24-0.34	3.0-5.9	0.1-0.5	.10	.32			
	32-42				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
256:														
Cooperdraw	0-2	55-65	20-25	15-20	1.40-1.60	14.00-42.00	0.05-0.09	0.0-2.9	0.5-1.0	.10	.24	2	6	48
	2-8	35-45	35-46	18-24	1.40-1.50	4.00-14.00	0.07-0.14	0.0-2.9	0.5-1.0	.20	.37			
	8-14	25-35	28-40	30-35	1.45-1.50	1.40-4.00	0.09-0.15	3.0-5.9	0.3-0.5	.10	.37			
	14-24	58-65	20-25	10-18	1.50-1.65	4.00-14.00	0.05-0.09	0.0-2.9	0.0-0.5	.15	.37			
	24-60				---	0.01-0.42	0.00-0.00	---	---	---	---			
Fertaline	0-2	55-80	6-27	14-18	1.48-1.64	14.00-42.00	0.04-0.08	0.0-2.9	0.3-0.5	.10	.28	2	6	48
	2-7	50-80	4-26	16-24	1.52-1.68	1.40-42.00	0.04-0.14	0.0-5.9	0.2-0.4	.15	.28			
	7-19	5-40	25-35	35-60	1.40-1.49	0.01-1.40	0.10-0.21	6.0-9.0	0.1-0.3	.28	.28			
	19-26	25-75	3-40	22-35	1.34-1.67	1.40-4.00	0.08-0.15	3.0-5.9	0.1-1.3	.20	.28			
	26-28				---	0.01-0.42	0.00-0.00	---	---	---	---			
257:														
Corral, low precipitation	0-3	55-75	15-27	10-18	1.51-1.61	14.00-42.00	0.11-0.15	0.0-2.9	0.1-0.5	.37	.37	2	3	86
	3-5	40-75	14-40	11-20	1.42-1.62	4.00-42.00	0.09-0.18	0.0-2.9	0.1-0.4	.32	.32			
	5-13	30-50	22-35	20-35	1.38-1.55	1.40-4.00	0.12-0.21	3.0-5.9	0.0-0.3	.32	.32			
	13-23				---	---	---	---	---	---	---			
258:														
Coztur	0-3	55-70	13-25	12-20	1.40-1.60	14.11-42.34	0.09-0.12	0.0-2.9	0.7-1.0	.28	.28	1	3	86
	3-7	30-40	25-40	28-35	1.25-1.30	1.40-4.00	0.07-0.14	3.0-5.9	0.2-0.5	.10	.37			
	7-13	30-40	25-40	28-35	1.30-1.50	1.40-4.00	0.11-0.21	3.0-5.9	0.2-0.5	.37	.37			
	13-23				---	---	---	---	---	---	---			
259:														
Crackedground	0-5	82-87	6-8	7-10	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-3.0	.10	.15	3	1	220
	5-13	55-75	15-29	10-16	1.00-1.35	14.00-42.00	0.06-0.12	0.0-2.9	1.0-2.0	.10	.24			
	13-38	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.5-1.0	.05	.24			
	38-43	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.1-0.5	.05	.32			
	43-53				---	---	---	---	---	---	---			
260:														
Crackedground	0-5	82-87	6-8	7-10	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-3.0	.10	.15	3	1	220
	5-13	55-75	15-29	10-16	1.00-1.35	14.00-42.00	0.06-0.12	0.0-2.9	1.0-2.0	.10	.24			
	13-38	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.5-1.0	.05	.24			
	38-43	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.1-0.5	.05	.32			
	43-53				---	---	---	---	---	---	---			
261:														
Crackedground	0-5	82-87	6-8	7-10	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-3.0	.10	.15	3	1	220
	5-13	55-75	15-29	10-16	1.00-1.35	14.00-42.00	0.06-0.12	0.0-2.9	1.0-2.0	.10	.24			
	13-38	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.5-1.0	.05	.24			
	38-43	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.1-0.5	.05	.32			
	43-53				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
261:														
Kunceider------------	0-5	55-75	15-35	5-15	0.92-1.23	14.00-42.00	0.07-0.12	0.0-2.9	2.0-3.0	.10	.32	1	5	56
	5-9	80-85	5-10	5-10	0.94-1.30	14.00-42.00	0.03-0.08	0.0-2.9	1.0-2.0	.05	.24			
	9-14	65-85	10-20	5-15	0.98-1.34	14.00-42.00	0.03-0.12	0.0-2.9	0.1-0.5	.05	.28			
	14-24				---	---	---	---	---	---	---			
262:														
Crackedground--------	0-5	82-87	6-8	7-10	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-3.0	.10	.15	3	1	220
	5-13	55-75	15-29	10-16	1.00-1.35	14.00-42.00	0.06-0.12	0.0-2.9	1.0-2.0	.10	.24			
	13-38	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.5-1.0	.05	.24			
	38-43	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.1-0.5	.05	.32			
	43-53				---	---	---	---	---	---	---			
Milcan---------------	0-2	75-85	5-20	5-10	0.94-1.24	14.00-42.00	0.06-0.11	0.0-2.9	1.0-2.0	.10	.15	2	1	220
	2-10	60-80	13-18	5-15	0.94-1.24	14.00-42.00	0.06-0.20	0.0-2.9	1.0-2.0	.10	.10			
	10-34	60-85	10-25	5-15	0.97-1.32	14.00-42.00	0.11-0.23	0.0-2.9	0.5-1.0	.20	.20			
	34-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
263:														
Crackedground--------	0-5	75-85	8-15	7-12	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-3.0	.05	.17	3	5	56
	5-13	55-75	15-29	10-16	1.00-1.35	14.00-42.00	0.06-0.12	0.0-2.9	1.0-2.0	.10	.24			
	13-38	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.5-1.0	.05	.24			
	38-43	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.1-0.5	.05	.32			
	43-53				---	---	---	---	---	---	---			
Milcan---------------	0-2	88-97	2-10	2-7	0.94-1.24	42.00-141.00	0.05-0.07	0.0-2.9	1.0-2.0	.02	.02	2	1	220
	2-10	60-80	13-18	5-15	0.94-1.24	14.00-42.00	0.06-0.20	0.0-2.9	1.0-2.0	.10	.10			
	10-34	60-85	10-25	5-15	0.97-1.32	14.00-42.00	0.11-0.23	0.0-2.9	0.5-1.0	.20	.20			
	34-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---
264:														
Crackedground--------	0-5	82-87	6-8	7-10	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-3.0	.10	.15	3	1	220
	5-13	55-75	15-29	10-16	1.00-1.35	14.00-42.00	0.06-0.12	0.0-2.9	1.0-2.0	.10	.24			
	13-38	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.5-1.0	.05	.24			
	38-43	55-75	15-27	10-18	1.00-1.35	14.00-42.00	0.03-0.08	0.0-2.9	0.1-0.5	.05	.32			
	43-53				---	---	---	---	---	---	---			
Wegert---------------	0-2	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.06-0.11	1.0-2.9	2.0-3.0	.05	.15	2	1	220
	2-6	75-85	5-15	5-10	0.95-1.30	42.00-141.00	0.08-0.12	1.0-2.9	1.0-2.0	.10	.10			
	6-27	60-85	5-25	5-15	1.00-1.35	42.00-141.00	0.08-0.12	1.0-2.9	0.4-0.8	.17	.17			
	27-31	75-85	5-15	5-10	1.00-1.35	42.00-141.00	0.02-0.08	1.0-2.9	0.2-0.6	.05	.28			
	31-41				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
266:														
Deppy----------------	0-4	30-50	30-45	20-27	1.40-1.45	4.00-14.00	0.06-0.09	0.0-2.9	0.3-0.5	.10	.43	1	8	0
	4-11	25-40	20-45	27-35	1.35-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.4	.37	.37			
	11-24				---	0.01-0.42	0.00-0.00	---	---	---	---			
	24-60	55-75	15-40	5-15	1.45-1.50	42.00-141.00	0.00-0.00	0.0-2.9	0.0-0.5	.10	.24			
Rubble land----------	0-60				---	---	---	---	---	---	---	---	---	---
267:														
Deppy----------------	0-4	30-50	30-45	20-27	1.40-1.45	4.00-14.00	0.09-0.12	0.0-2.9	0.3-0.5	.15	.43	1	8	0
	4-11	25-40	20-45	27-35	1.35-1.40	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.4	.37	.37			
	11-24				---	0.01-0.42	0.00-0.00	---	---	---	---			
	24-60	55-75	15-40	5-15	1.45-1.50	42.00-141.00	0.00-0.00	0.0-2.9	0.0-0.5	.10	.24			
Tumtum---------------	0-3	30-50	30-45	20-27	1.27-1.28	4.00-14.00	0.10-0.15	1.0-5.9	0.3-0.5	.24	.43	1	7	38
	3-14	25-40	34-40	27-35	1.28-1.29	1.40-4.00	0.17-0.21	3.0-5.9	0.1-0.3	.37	.37			
	14-22				---	0.01-0.42	0.00-0.00	---	---	---	---			
	22-60	60-70	25-25	5-15	1.30-1.40	14.00-42.00	0.00-0.00	0.0-2.9	0.0-0.0	.10	.28			
268:														
Derallo--------------	0-1	30-50	30-48	10-18	1.00-1.35	4.00-14.00	0.11-0.18	1.0-2.9	1.5-4.0	.15	.49	4	6	48
	1-12	30-50	30-45	18-26	1.00-1.35	14.00-42.00	0.06-0.11	3.0-5.9	1.0-4.0	.05	.49			
	12-36	30-60	20-45	22-35	1.00-1.35	1.40-14.00	0.06-0.18	3.0-5.9	0.5-3.0	.05	.49			
	36-41	55-70	10-35	10-18	1.00-1.35	14.00-42.00	0.06-0.14	1.0-2.9	0.2-0.5	.10	.37			
	41-51				---	---	---	---	---	---	---			
Chesebro-------------	0-4	35-45	35-55	12-20	0.72-1.05	4.00-14.00	0.11-0.15	0.0-2.9	2.0-4.0	.10	.43	5	6	48
	4-24	35-45	35-55	12-20	0.72-1.05	4.00-14.00	0.08-0.17	0.0-2.9	2.0-4.0	.10	.43			
	24-60	30-55	25-40	22-32	0.99-1.30	4.00-14.00	0.08-0.20	3.0-5.9	0.5-2.0	.10	.49			
269:														
Deallo, north-------	0-1	88-95	2-10	2-8	1.00-1.35	42.00-141.00	0.03-0.07	0.0-2.9	1.5-4.0	.17	.32	4	1	310
	1-12	30-50	30-45	18-26	1.00-1.35	14.00-42.00	0.06-0.11	3.0-5.9	1.0-4.0	.05	.49			
	12-36	30-60	20-45	22-35	1.00-1.35	1.40-14.00	0.06-0.18	3.0-5.9	0.5-3.0	.05	.49			
	36-41	55-70	10-35	10-18	1.00-1.35	14.00-42.00	0.06-0.14	1.0-2.9	0.2-0.5	.10	.37			
	41-51				---	---	---	---	---	---	---			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---
270:														
Derallo, south-------	0-1	88-95	2-10	2-8	1.00-1.35	42.00-141.00	0.03-0.07	0.0-2.9	1.5-4.0	.05	.17	4	1	250
	1-12	30-50	30-45	18-26	1.00-1.35	14.00-42.00	0.06-0.11	3.0-5.9	1.0-4.0	.05	.49			
	12-36	30-60	20-45	22-35	1.00-1.35	1.40-14.00	0.06-0.18	3.0-5.9	0.5-3.0	.05	.49			
	36-41	55-70	10-35	10-18	1.00-1.35	14.00-42.00	0.06-0.14	1.0-2.9	0.2-0.5	.10	.37			
	41-51				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
270:														
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
271:														
Diablopeak	0-2	55-75	15-31	10-14	1.48-1.58	14.00-42.00	0.04-0.08	0.0-2.9	0.2-0.5	.10	.37	1	6	48
	2-6	55-75	13-27	12-18	1.51-1.61	14.00-42.00	0.07-0.13	0.0-2.9	0.2-0.4	.20	.37			
	6-7	55-75	13-27	12-18	1.53-1.62	14.00-42.00	0.09-0.14	0.0-2.9	0.1-0.3	.43	.43			
	7-12	10-40	25-35	35-55	1.39-1.50	0.42-1.40	0.07-0.18	3.0-9.0	0.1-0.3	.28	.28			
	12-19	20-55	9-35	32-45	1.36-1.62	0.42-1.40	0.07-0.17	3.0-9.0	0.0-0.1	.24	.24			
	19-29				---	---	---	---	---	---	---			
Yankeewell	0-3	50-75	10-35	10-15	1.12-1.16	14.00-42.00	0.05-0.09	1.0-2.9	0.6-1.0	.10	.24	1	6	48
	3-6	40-70	20-40	12-24	1.25-1.30	4.00-14.00	0.12-0.16	3.0-5.9	0.2-0.6	.20	.37			
	6-11	25-40	25-40	27-35	1.43-1.50	1.40-4.00	0.15-0.21	6.0-9.0	0.2-0.6	.37	.37			
	11-25				---	0.01-0.42	0.00-0.00	---	---	---	---			
	25-35				---	---	---	---	---	---	---			
272:														
Drakesflat	0-2	30-50	30-43	20-27	1.27-1.48	4.00-14.00	0.11-0.15	3.0-5.9	0.5-2.0	.32	.32	2	6	48
	2-7	30-50	30-43	20-27	1.21-1.44	4.00-14.00	0.11-0.16	3.0-5.9	1.0-3.0	.28	.28			
	7-16	20-40	25-35	35-45	1.31-1.46	0.42-1.40	0.10-0.19	6.0-9.0	0.5-1.0	.17	.28			
	16-22	25-50	30-40	25-40	1.32-1.52	1.40-4.00	0.06-0.18	3.0-9.0	0.1-0.5	.20	.37			
	22-32				---	---	---	---	---	---	---			
273:														
Drakesflat	0-2	30-50	30-43	20-27	1.27-1.48	4.00-14.00	0.11-0.15	3.0-5.9	0.5-2.0	.32	.32	2	6	48
	2-7	30-50	30-43	20-27	1.21-1.44	4.00-14.00	0.11-0.16	3.0-5.9	1.0-3.0	.28	.28			
	7-16	20-40	25-35	35-45	1.31-1.46	0.42-1.40	0.10-0.19	6.0-9.0	0.5-1.0	.17	.28			
	16-22	25-50	30-40	25-40	1.32-1.52	1.40-4.00	0.06-0.18	3.0-9.0	0.1-0.5	.20	.37			
	22-32				---	---	---	---	---	---	---			
274:														
Dune land	0-60	99-100	0-0	0-1	1.40-1.60	42.00-141.00	0.03-0.05	0.0-2.9	0.0-0.1	---	---	5	1	250
275:														
Dune land	0-60	99-100	0-0	0-1	1.40-1.60	42.00-141.00	0.03-0.05	0.0-2.9	0.0-0.1	---	---	5	1	250
Fossilake	0-1	55-75	24-31	6-14	1.00-1.35	14.00-42.00	0.01-0.06	0.0-2.9	0.1-0.5	.28	.28	5	2	134
	1-3	65-75	17-29	8-16	1.00-1.35	4.00-14.00	0.01-0.06	0.0-2.9	0.1-0.4	.49	.49			
	3-15	15-50	15-69	10-26	1.00-1.35	4.00-14.00	0.02-0.16	0.0-5.9	0.0-0.3	.49	.49			
	15-31	30-88	4-46	8-24	1.00-1.35	4.00-141.00	0.05-0.24	0.0-5.9	0.0-0.3	.32	.32			
	31-43	25-45	31-40	24-35	1.00-1.35	1.40-14.00	0.06-0.24	3.0-5.9	0.0-0.2	.37	.37			
	43-66	15-50	32-68	18-27	1.00-1.35	4.00-14.00	0.06-0.27	3.0-5.9	0.0-0.1	.49	.49			
Salhouse	0-5	75-85	5-20	2-8	0.99-1.34	42.00-141.00	0.15-0.17	0.0-2.9	0.1-0.3	.20	.20	5	1	220
	5-42	80-95	0-15	3-10	0.99-1.34	42.00-141.00	0.07-0.12	0.0-2.9	0.1-0.2	.10	.10			
	42-61	10-60	30-65	10-25	0.99-1.40	4.00-42.00	0.10-0.30	3.0-5.9	0.0-0.1	.43	.43			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
276:														
Dune land	0-60	99-100	0-0	0-1	1.40-1.60	42.00-141.00	0.03-0.05	0.0-2.9	0.0-0.1	---	---	5	1	250
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
277:														
Dune land	0-60	99-100	0-0	0-1	1.40-1.60	42.00-141.00	0.03-0.05	0.0-2.9	0.0-0.1	---	---	5	1	250
Salhouse	0-5	90-100	0-10	2-5	0.99-1.34	42.00-141.00	0.06-0.09	0.0-2.9	0.1-0.3	.02	.02	5	1	220
	5-42	80-95	0-15	3-10	0.99-1.34	42.00-141.00	0.07-0.12	0.0-2.9	0.1-0.2	.10	.10			
	42-61	10-60	30-65	10-25	0.99-1.40	4.00-42.00	0.10-0.30	3.0-5.9	0.0-0.1	.43	.43			
278:														
Dunres	0-4	55-75	15-27	10-18	0.85-1.25	14.00-42.00	0.17-0.24	0.0-2.9	1.0-3.0	.17	.28	1	4	86
	4-8	50-75	5-15	20-35	0.90-1.25	1.40-4.00	0.23-0.32	3.0-5.9	1.0-2.0	.24	.24			
	8-19	10-40	20-35	40-55	1.12-1.39	0.10-0.42	0.10-0.16	6.0-9.0	0.5-1.0	.24	.24			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-56				---	0.01-0.42	0.00-0.00	---	---	---	---			
	56-60				---	---	---	---	---	---	---			
279:														
Dunres, thick surface	0-4	55-75	15-27	10-18	0.85-1.25	14.00-42.00	0.17-0.24	0.0-2.9	1.0-3.0	.17	.28	1	4	86
	4-8	50-75	5-15	20-35	0.90-1.25	1.40-4.00	0.23-0.32	3.0-5.9	1.0-2.0	.24	.24			
	8-19	10-40	20-35	40-55	1.12-1.39	0.10-0.42	0.10-0.16	6.0-9.0	0.5-1.0	.24	.24			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-56				---	0.01-0.42	0.00-0.00	---	---	---	---			
	56-60				---	---	---	---	---	---	---			
280:														
Dunres	0-4	55-75	15-27	10-18	0.85-1.25	14.00-42.00	0.13-0.20	0.0-2.9	1.0-3.0	.20	.32	1	4	86
	4-8	50-75	5-15	20-35	0.90-1.25	1.40-4.00	0.23-0.32	3.0-5.9	1.0-2.0	.24	.24			
	8-19	10-40	20-35	40-55	1.12-1.39	0.10-0.42	0.10-0.16	6.0-9.0	0.5-1.0	.24	.24			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-56				---	0.01-0.42	0.00-0.00	---	---	---	---			
	56-60				---	---	---	---	---	---	---			
281:														
Dunres	0-4	55-75	15-27	10-18	0.85-1.25	14.00-42.00	0.13-0.20	0.0-2.9	1.0-3.0	.20	.32	1	4	86
	4-8	50-75	5-15	20-35	0.90-1.25	1.40-4.00	0.23-0.32	3.0-5.9	1.0-2.0	.24	.24			
	8-19	10-40	20-35	40-55	1.12-1.39	0.10-0.42	0.10-0.16	6.0-9.0	0.5-1.0	.24	.24			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-56				---	0.01-0.42	0.00-0.00	---	---	---	---			
	56-60				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
281:														
Henkle---------------	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	5	56
	1-6	55-70	20-25	5-18	0.81-1.11	14.00-42.00	0.12-0.18	1.0-2.9	2.0-4.0	.15	.20			
	6-16	35-70	25-45	5-20	0.84-1.18	14.00-42.00	0.11-0.21	1.0-2.9	0.5-2.0	.32	.55			
	16-20	35-70	25-45	5-20	0.88-1.18	14.00-42.00	0.03-0.14	1.0-2.9	0.4-0.8	.15	.55			
	20-30				---	---	---	---	---	---	---			
282:														
Dunres---------------	0-4	55-75	15-27	10-18	0.85-1.25	14.00-42.00	0.13-0.20	0.0-2.9	1.0-3.0	.20	.32	1	4	86
	4-8	50-75	5-15	20-35	0.90-1.25	1.40-4.00	0.23-0.32	3.0-5.9	1.0-2.0	.24	.24			
	8-19	10-40	20-35	40-55	1.12-1.39	0.10-0.42	0.10-0.16	6.0-9.0	0.5-1.0	.24	.24			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-56				---	0.01-0.42	0.00-0.00	---	---	---	---			
	56-60				---	---	---	---	---	---	---			
Moonbeam-------------	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.12-0.18	0.0-2.9	1.0-3.0	.24	.43	1	4	86
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
283:														
Dunres---------------	0-4	30-45	30-45	10-22	0.85-1.25	4.00-14.00	0.08-0.18	0.0-2.9	1.0-3.0	.15	.37	1	7	38
	4-8	50-75	5-15	20-35	0.90-1.25	1.40-4.00	0.23-0.32	3.0-5.9	1.0-2.0	.24	.24			
	8-19	10-40	20-35	40-55	1.12-1.39	0.10-0.42	0.10-0.16	6.0-9.0	0.5-1.0	.24	.24			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-56				---	0.01-0.42	0.00-0.00	---	---	---	---			
	56-60				---	---	---	---	---	---	---			
Moonbeam-------------	0-3	35-50	38-45	12-20	0.92-1.24	1.40-4.00	0.06-0.08	0.0-2.9	1.0-3.0	.05	.43	1	7	38
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Nuss-----------------	0-3	55-75	15-35	8-15	1.19-1.34	14.00-42.00	0.04-0.08	0.0-2.9	1.0-2.0	.05	.37	1	8	0
	3-17	25-45	35-40	20-35	1.21-1.29	4.00-14.00	0.10-0.20	1.0-5.9	0.8-1.5	.37	.37			
	17-27				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
284:														
Dunres	0-4	30-45	30-45	10-22	0.85-1.25	4.00-14.00	0.08-0.18	0.0-2.9	1.0-3.0	.15	.37	1	7	38
	4-8	50-75	5-15	20-35	0.90-1.25	1.40-4.00	0.23-0.32	3.0-5.9	1.0-2.0	.24	.24			
	8-19	10-40	20-35	40-55	1.12-1.39	0.10-0.42	0.10-0.16	6.0-9.0	0.5-1.0	.24	.24			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-56				---	0.01-0.42	0.00-0.00	---	---	---	---			
	56-60				---	---	---	---	---	---	---			
Murlose	0-3	60-70	20-25	8-15	0.91-1.29	14.00-42.00	0.10-0.17	0.0-2.9	1.0-3.0	.20	.32	1	4	86
	3-11	60-70	20-21	10-18	0.91-1.29	14.00-42.00	0.11-0.17	0.0-2.9	1.0-3.0	.15	.32			
	11-19	30-70	10-35	20-35	0.94-1.32	1.40-4.00	0.11-0.20	1.0-5.9	0.5-2.0	.20	.32			
	19-22				---	0.01-0.42	0.00-0.00	---	---	---	---			
	22-32				---	---	---	---	---	---	---			
Nuss	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	1	7	38
	1-2	55-70	15-30	15-18	0.90-1.25	4.00-42.00	0.03-0.08	1.0-2.9	1.0-3.0	.02	.24			
	2-8	25-45	30-40	25-30	0.90-1.25	1.40-14.00	0.20-0.27	3.0-5.9	1.0-2.0	.24	.43			
	8-15	45-65	20-35	15-22	0.97-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.4-1.0	.05	.37			
	15-19				---	---	---	---	---	---	---			
	19-29				---	---	---	---	---	---	---			
285:														
Dunres	0-4	55-75	15-27	10-18	0.85-1.25	14.00-42.00	0.13-0.18	0.0-2.9	1.0-3.0	.10	.28	1	5	56
	4-8	50-75	5-15	20-35	0.90-1.25	1.40-4.00	0.23-0.32	3.0-5.9	1.0-2.0	.24	.24			
	8-19	10-40	20-35	40-55	1.12-1.39	0.10-0.42	0.10-0.16	6.0-9.0	0.5-1.0	.24	.24			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-56				---	0.01-0.42	0.00-0.00	---	---	---	---			
	56-60				---	---	---	---	---	---	---			
Moonbeam	0-3	55-75	15-35	8-15	1.26-1.41	14.00-42.00	0.02-0.05	1.0-2.9	1.0-3.0	.05	.37	1	7	38
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
286:														
Dunres	0-4	30-45	30-45	10-22	0.85-1.25	4.00-14.00	0.08-0.18	0.0-2.9	1.0-3.0	.15	.37	1	7	38
	4-8	50-75	5-15	20-35	0.90-1.25	1.40-4.00	0.23-0.32	3.0-5.9	1.0-2.0	.24	.24			
	8-19	10-40	20-35	40-55	1.12-1.39	0.10-0.42	0.10-0.16	6.0-9.0	0.5-1.0	.24	.24			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-56				---	0.01-0.42	0.00-0.00	---	---	---	---			
	56-60				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
286:														
Norcross, cobbly ashy loam surface	0-3	35-50	35-45	10-25	1.00-1.35	4.00-14.00	0.15-0.22	1.0-5.9	2.0-4.0	.20	.37	1	6	48
	3-6	25-50	30-45	22-30	1.00-1.35	4.00-42.00	0.08-0.23	3.0-5.9	1.0-3.0	.20	.37			
	6-19	20-40	10-40	38-60	1.20-1.45	0.42-4.00	0.18-0.24	6.0-9.0	0.2-1.0	.20	.20			
	19-21				---	0.01-0.42	0.00-0.00	---	---	---	---			
	21-31				---	---	---	---	---	---	---			
Norcross, very cobbly ashy fine sandy loam surface	0-3	55-75	10-30	15-20	1.00-1.35	14.00-42.00	0.08-0.15	1.0-2.9	2.0-4.0	.15	.28	1	5	56
	3-6	25-50	30-45	22-30	1.00-1.35	4.00-42.00	0.08-0.23	3.0-5.9	1.0-3.0	.20	.37			
	6-19	20-40	10-40	38-60	1.20-1.45	0.42-4.00	0.18-0.24	6.0-9.0	0.2-1.0	.20	.20			
	19-21				---	0.01-0.42	0.00-0.00	---	---	---	---			
	21-31				---	---	---	---	---	---	---			
287:														
Edemaps	0-3	55-70	20-25	12-18	1.05-1.20	14.00-42.00	0.07-0.11	1.0-2.9	1.0-3.0	.15	.24	2	5	56
	3-10	40-65	20-30	16-30	1.05-1.20	1.40-42.00	0.07-0.13	1.0-5.9	1.0-3.0	.20	.20			
	10-19	25-35	30-40	35-40	1.20-1.25	1.40-4.00	0.13-0.19	6.0-8.9	0.5-1.0	.20	.32			
	19-24	25-35	30-40	35-40	1.20-1.25	1.40-4.00	0.13-0.19	6.0-8.9	0.5-1.0	.17	.32			
	24-26				---	0.01-0.42	0.00-0.00	---	---	---	---			
	26-30				---	---	---	---	---	---	---			
Pernty	0-3	55-75	15-35	8-15	1.05-1.20	14.00-42.00	0.07-0.11	1.0-2.9	1.0-3.0	.17	.37	1	5	56
	3-12	20-50	25-45	25-35	1.05-1.20	1.40-4.00	0.09-0.14	6.0-9.0	0.2-1.5	.10	.32			
	12-22				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
288:														
Embal	0-2	55-75	20-35	10-18	0.85-1.25	14.00-42.00	0.15-0.19	1.0-2.9	1.0-3.0	.24	.24	4	2	134
	2-6	30-75	20-60	10-18	0.90-1.30	4.00-42.00	0.13-0.18	1.0-2.9	1.0-2.0	.28	.28			
	6-25	30-75	20-60	10-18	0.90-1.30	4.00-42.00	0.13-0.18	1.0-2.9	1.0-2.0	.28	.28			
	25-34	55-75	20-35	10-18	0.95-1.35	14.00-42.00	0.05-0.11	1.0-2.9	0.2-1.0	.20	.32			
	34-42	55-75	20-35	10-18	1.60-1.70	14.00-42.00	0.08-0.14	1.0-2.9	0.2-0.5	.15	.32			
	42-60	55-75	20-35	10-18	1.70-2.00	0.42-1.40	0.08-0.14	1.0-2.9	0.2-0.5	.15	.32			
289:														
Embal	0-2	55-75	20-35	10-18	0.85-1.25	14.00-42.00	0.12-0.16	1.0-2.9	1.0-3.0	.15	.24	4	4	86
	2-6	30-75	20-60	10-18	0.90-1.30	4.00-42.00	0.13-0.18	1.0-2.9	1.0-2.0	.28	.28			
	6-25	30-75	20-60	10-18	0.90-1.30	4.00-42.00	0.13-0.18	1.0-2.9	1.0-2.0	.28	.28			
	25-34	55-75	20-35	10-18	0.95-1.35	14.00-42.00	0.05-0.11	1.0-2.9	0.2-1.0	.20	.32			
	34-42	55-75	20-35	10-18	1.60-1.70	14.00-42.00	0.08-0.14	1.0-2.9	0.2-0.5	.15	.32			
	42-60	55-75	20-35	10-18	1.70-2.00	0.42-1.40	0.08-0.14	1.0-2.9	0.2-0.5	.15	.32			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
289:														
Paulina	0-22	50-70	10-20	20-30	0.69-1.16	1.40-14.00	0.08-0.17	3.0-5.9	2.0-4.0	.05	.24	5	6	48
	22-60	50-70	10-20	20-30	0.75-1.30	1.40-14.00	0.03-0.09	3.0-5.9	1.0-3.0	.10	.43			
290:														
Enko	0-2	55-80	10-40	5-15	1.20-1.25	14.00-42.00	0.09-0.13	1.0-2.9	0.2-1.0	.20	.20	5	3	86
	2-11	45-70	20-40	10-18	1.34-1.40	14.00-42.00	0.05-0.13	1.0-2.9	0.2-0.5	.20	.20			
	11-35	40-70	20-40	10-18	1.34-1.60	14.00-42.00	0.09-0.13	1.0-2.9	0.2-0.5	.28	.28			
	35-60	40-70	20-40	10-18	1.70-1.80	0.42-4.20	0.04-0.13	1.0-2.9	0.2-0.5	.37	.37			
291:														
Enko	0-2	30-50	30-45	15-25	1.20-1.25	4.00-14.00	0.14-0.18	1.0-2.9	0.2-1.0	.28	.28	5	6	48
	2-11	45-70	20-40	10-18	1.34-1.40	14.00-42.00	0.05-0.13	1.0-2.9	0.2-0.5	.20	.20			
	11-35	40-70	20-40	10-18	1.34-1.60	14.00-42.00	0.09-0.13	1.0-2.9	0.2-0.5	.28	.28			
	35-60	40-70	20-40	10-18	1.70-1.80	0.42-4.20	0.04-0.13	1.0-2.9	0.2-0.5	.37	.37			
292:														
Enko	0-2	75-85	10-20	5-10	1.20-1.25	14.00-42.00	0.09-0.13	1.0-2.9	0.2-1.0	.10	.10	5	2	134
	2-11	45-70	20-40	10-18	1.34-1.40	14.00-42.00	0.05-0.13	1.0-2.9	0.2-0.5	.20	.20			
	11-35	40-70	20-40	10-18	1.34-1.60	14.00-42.00	0.09-0.13	1.0-2.9	0.2-0.5	.28	.28			
	35-60	40-70	20-40	10-18	1.70-1.80	0.42-4.20	0.04-0.13	1.0-2.9	0.2-0.5	.37	.37			
293:														
Enko	0-2	75-85	10-20	5-10	1.20-1.25	14.00-42.00	0.09-0.13	1.0-2.9	0.2-1.0	.10	.10	5	2	134
	2-11	45-70	20-40	10-18	1.34-1.40	14.00-42.00	0.05-0.13	1.0-2.9	0.2-0.5	.20	.20			
	11-35	40-70	20-40	10-18	1.34-1.60	14.00-42.00	0.09-0.13	1.0-2.9	0.2-0.5	.28	.28			
	35-60	40-70	20-40	10-18	1.70-1.80	0.42-4.20	0.04-0.13	1.0-2.9	0.2-0.5	.37	.37			
Catlow	0-3	30-50	30-45	10-20	1.51-1.56	14.00-42.00	0.12-0.14	0.0-2.9	0.2-0.5	.24	.37	5	6	48
	3-21	55-75	13-20	10-25	1.20-1.30	14.00-42.00	0.02-0.10	0.0-2.9	0.1-0.4	.05	.28			
	21-30	55-85	10-30	5-15	1.40-1.55	1.40-4.20	0.00-0.08	0.0-2.9	0.1-0.4	.05	.28			
	30-60	55-90	12-35	3-10	1.20-1.40	14.00-141.00	0.00-0.07	0.0-2.9	0.1-0.3	.05	.24			
294:														
Enko	0-2	75-85	10-20	5-10	1.20-1.25	14.00-42.00	0.07-0.11	1.0-2.9	0.2-1.0	.05	.10	5	2	134
	2-11	45-70	20-40	10-18	1.34-1.40	14.00-42.00	0.05-0.13	1.0-2.9	0.2-0.5	.20	.20			
	11-35	40-70	20-40	10-18	1.34-1.60	14.00-42.00	0.09-0.13	1.0-2.9	0.2-0.5	.28	.28			
	35-60	40-70	20-40	10-18	1.70-1.80	0.42-4.20	0.04-0.13	1.0-2.9	0.2-0.5	.37	.37			
McConnel	0-1	75-85	5-20	2-10	1.50-1.90	14.00-42.00	0.04-0.07	1.0-2.9	0.2-1.0	.10	.15	3	2	134
	1-12	40-75	15-40	5-15	1.50-1.90	14.00-42.00	0.11-0.18	1.0-2.9	0.2-0.5	.24	.24			
	12-18	60-90	4-30	5-15	1.80-2.00	14.00-42.00	0.01-0.10	1.0-2.9	0.2-0.4	.10	.17			
	18-60	80-95	2-10	3-10	1.80-2.00	42.00-141.00	0.01-0.05	1.0-2.9	0.2-0.3	.02	.02			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
295:														
Erakatak-------------	0-3	25-45	30-45	27-35	1.05-1.25	1.40-4.00	0.12-0.18	3.0-5.9	1.0-3.0	.17	.28	2	6	48
	3-11	25-45	35-41	20-35	1.15-1.40	1.40-14.00	0.05-0.14	3.0-5.9	1.0-3.0	.10	.32			
	11-20	20-40	25-35	35-40	1.20-1.40	1.40-4.00	0.05-0.14	6.0-9.0	0.5-2.0	.10	.32			
	20-27	20-40	25-35	40-45	1.20-1.40	0.42-1.40	0.05-0.14	6.0-9.0	0.5-2.0	.05	.28			
	27-37				---	---	---	---	---	---	---			
296:														
Erakatak-------------	0-3	30-50	30-45	10-25	1.05-1.29	4.00-14.00	0.12-0.15	0.0-2.9	1.0-3.0	.20	.32	2	6	48
	3-11	25-45	35-41	20-35	1.15-1.40	1.40-14.00	0.05-0.14	3.0-5.9	1.0-3.0	.10	.32			
	11-20	20-40	25-35	35-40	1.20-1.40	1.40-4.00	0.05-0.14	6.0-9.0	0.5-2.0	.10	.32			
	20-27	20-40	25-35	40-45	1.20-1.40	0.42-1.40	0.05-0.14	6.0-9.0	0.5-2.0	.05	.28			
	27-37				---	---	---	---	---	---	---			
Carryback------------	0-2	30-45	30-45	20-25	1.30-1.50	4.23-14.11	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	2	8	0
	2-8	5-40	30-65	27-35	1.30-1.50	1.41-4.23	0.15-0.17	3.0-5.9	1.0-2.0	.37	.37			
	8-15	10-40	20-50	40-60	1.40-1.60	0.42-1.41	0.12-0.16	6.0-8.9	0.5-1.0	.24	.24			
	15-33	5-50	30-60	20-30	1.30-1.50	4.23-14.11	0.13-0.16	0.0-2.9	0.0-0.5	.43	.43			
	33-43				---	---	---	---	---	---	---			
297:														
Erakatak-------------	0-3	30-50	30-45	10-25	1.05-1.29	4.00-14.00	0.05-0.10	0.0-2.9	1.0-3.0	.10	.32	2	7	38
	3-11	25-45	35-41	20-35	1.15-1.40	1.40-14.00	0.05-0.14	3.0-5.9	1.0-3.0	.10	.32			
	11-20	20-40	25-35	35-40	1.20-1.40	1.40-4.00	0.05-0.14	6.0-9.0	0.5-2.0	.10	.32			
	20-27	20-40	25-35	40-45	1.20-1.40	0.42-1.40	0.05-0.14	6.0-9.0	0.5-2.0	.05	.28			
	27-37				---	---	---	---	---	---	---			
Leevan, south--------	0-3	30-50	35-45	15-25	1.14-1.24	4.00-14.00	0.08-0.12	1.0-2.9	1.0-3.0	.10	.32	2	8	0
	3-7	25-50	30-45	20-32	1.18-1.24	4.00-14.00	0.09-0.11	1.0-2.9	1.0-2.0	.15	.32			
	7-16	20-40	30-35	30-50	1.17-1.28	0.42-4.00	0.10-0.17	1.0-8.9	0.3-0.7	.15	.37			
	16-31	15-40	20-30	40-60	1.08-1.24	0.42-1.40	0.06-0.10	1.0-8.9	0.1-0.5	.10	.32			
	31-41				---	---	---	---	---	---	---			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---
298:														
Erakatak-------------	0-3	25-45	30-45	27-35	1.05-1.25	1.40-4.00	0.07-0.14	3.0-5.9	1.0-3.0	.10	.28	2	7	38
	3-11	25-45	35-41	20-35	1.15-1.40	1.40-14.00	0.05-0.14	3.0-5.9	1.0-3.0	.10	.32			
	11-20	20-40	25-35	35-40	1.20-1.40	1.40-4.00	0.05-0.14	6.0-9.0	0.5-2.0	.10	.32			
	20-27	20-40	25-35	40-45	1.20-1.40	0.42-1.40	0.05-0.14	6.0-9.0	0.5-2.0	.05	.28			
	27-37				---	---	---	---	---	---	---			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
299:														
Erakatak-------------	0-3	30-50	30-45	10-25	1.05-1.29	4.00-14.00	0.05-0.10	0.0-2.9	1.0-3.0	.10	.32	2	7	38
	3-11	25-45	35-41	20-35	1.15-1.40	1.40-14.00	0.05-0.14	3.0-5.9	1.0-3.0	.10	.32			
	11-20	20-40	25-35	35-40	1.20-1.40	1.40-4.00	0.05-0.14	6.0-9.0	0.5-2.0	.10	.32			
	20-27	20-40	25-35	40-45	1.20-1.40	0.42-1.40	0.05-0.14	6.0-9.0	0.5-2.0	.05	.28			
	27-37				---	---	---	---	---	---	---			
Rubble land----------	0-60				---	---	---	---	---	---	---	---	---	---
300:														
Felcher, south-------	0-4	55-75	10-40	5-18	1.32-1.50	14.00-42.00	0.08-0.12	0.0-2.9	0.3-0.5	.15	.32	2	6	48
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			
Camptank-------------	0-3	55-70	25-40	12-18	1.40-1.60	14.00-42.00	0.05-0.07	0.0-2.9	0.5-0.9	.05	.32	3	8	0
	3-6	55-70	20-38	12-18	1.40-1.60	14.00-42.00	0.13-0.15	0.0-2.9	0.3-0.8	.28	.28			
	6-10	10-40	20-40	35-50	1.30-1.45	0.42-1.40	0.13-0.16	6.0-9.0	0.1-0.3	.24	.24			
	10-17	25-40	25-45	28-40	1.30-1.50	1.40-4.00	0.17-0.19	3.0-5.9	0.0-0.2	.32	.32			
	17-34	55-70	15-35	10-18	1.50-1.70	4.00-14.00	0.07-0.10	0.0-2.9	0.0-0.2	.10	.32			
	34-41	55-70	15-35	7-15	1.65-1.75	4.00-14.00	0.07-0.10	0.0-2.9	0.0-0.1	.15	.43			
	41-51				---	---	---	---	---	---	---			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---
301:														
Felcher, south-------	0-4	28-50	32-47	18-25	1.32-1.50	4.00-14.00	0.05-0.12	3.0-5.9	0.3-0.5	.15	.37	2	8	0
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			
Fitzwater, north-----	0-3	30-45	30-45	10-22	1.40-1.65	4.00-14.00	0.05-0.12	0.0-2.9	1.0-3.0	.10	.32	5	7	38
	3-7	55-70	25-35	10-15	1.19-1.39	14.00-42.00	0.04-0.08	0.0-2.9	1.0-2.0	.10	.20			
	7-33	25-70	20-45	16-30	1.24-1.46	14.00-42.00	0.01-0.11	0.0-5.9	0.5-1.0	.05	.28			
	33-60	30-70	20-45	15-25	1.27-1.39	14.00-42.00	0.01-0.07	0.0-5.9	0.1-0.5	.05	.28			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---
302:														
Felcher, south-------	0-4	55-75	10-40	5-18	1.32-1.50	14.00-42.00	0.08-0.12	0.0-2.9	0.3-0.5	.15	.32	2	6	48
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
302:														
Oreneva, north-------	0-2	55-70	15-35	8-15	1.27-1.38	14.00-42.00	0.08-0.13	1.0-2.9	0.3-0.5	.20	.43	2	5	56
	2-10	25-50	30-45	18-30	1.33-1.44	1.40-4.00	0.14-0.21	1.0-5.9	0.1-0.3	.43	.43			
	10-21	25-50	30-45	18-30	1.34-1.45	1.40-14.00	0.08-0.14	1.0-5.9	0.1-0.2	.17	.49			
	21-31				---	---	---	---	---	---	---			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---
303:														
Felcher, south-------	0-4	28-50	32-47	18-25	1.32-1.50	4.00-14.00	0.05-0.12	3.0-5.9	0.3-0.5	.05	.37	2	8	0
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			
Riddleranch----------	0-8	30-50	30-45	15-22	1.20-1.25	4.00-14.00	0.05-0.12	1.0-2.9	1.0-2.0	.10	.32	2	7	38
	8-28	30-45	30-45	20-28	1.25-1.30	4.00-14.00	0.04-0.13	1.0-2.9	0.2-0.7	.10	.32			
	28-38				---	---	---	---	---	---	---			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---
304:														
Felcher, south-------	0-4	55-75	10-40	5-18	1.32-1.50	14.00-42.00	0.08-0.12	0.0-2.9	0.3-0.5	.15	.32	2	6	48
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---
305:														
Felcher, south-------	0-4	55-75	10-40	5-18	1.32-1.50	14.00-42.00	0.08-0.12	0.0-2.9	0.3-0.5	.10	.32	2	6	48
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---
306:														
Felcher, south-------	0-4	25-40	25-45	28-35	1.32-1.50	1.40-4.00	0.07-0.14	3.0-5.9	0.3-0.5	.10	.32	2	8	0
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
307:														
Felcher, south	0-4	55-70	10-20	25-32	1.32-1.50	1.40-4.00	0.03-0.06	3.0-5.9	0.3-0.5	.02	.20	2	8	0
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Brezniak	0-3	28-47	35-45	18-25	1.19-1.40	4.00-14.00	0.10-0.15	3.0-5.9	1.0-3.0	.20	.37	1	7	38
	3-10	20-40	25-30	35-50	1.31-1.46	0.42-1.40	0.12-0.19	6.0-9.0	0.5-1.0	.28	.28			
	10-20				---	---	---	---	---	---	---			
308:														
Felcher, south	0-4	28-50	32-47	18-25	1.32-1.50	4.00-14.00	0.05-0.12	3.0-5.9	0.3-0.5	.15	.37	2	8	0
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Westbutte, north	0-3	30-50	30-45	15-22	1.12-1.25	4.00-14.00	0.04-0.07	3.0-5.9	1.0-3.0	.05	.32	2	8	0
	3-11	30-50	25-45	18-30	1.20-1.25	1.40-14.00	0.05-0.13	3.0-5.9	1.0-3.0	.10	.37			
	11-21	30-50	25-45	18-30	1.20-1.30	1.40-14.00	0.05-0.15	3.0-5.9	0.6-2.0	.10	.37			
	21-31				---	---	---	---	---	---	---			
309:														
Firelake	0-2	80-85	11-12	4-8	1.53-1.59	42.00-141.00	0.05-0.08	0.0-2.9	0.1-0.4	.10	.24	1	3	86
	2-7	55-75	17-29	8-16	1.48-1.59	14.00-42.00	0.07-0.12	0.0-2.9	0.1-0.3	.24	.37			
	7-17				---	---	---	---	---	---	---			
Enko	0-2	55-80	10-40	5-15	1.20-1.25	14.00-42.00	0.09-0.13	1.0-2.9	0.2-1.0	.20	.20	5	3	86
	2-11	45-70	20-40	10-18	1.34-1.40	14.00-42.00	0.05-0.13	1.0-2.9	0.2-0.5	.20	.20			
	11-35	40-70	20-40	10-18	1.34-1.60	14.00-42.00	0.09-0.13	1.0-2.9	0.2-0.5	.28	.28			
	35-60	40-70	20-40	10-18	1.70-1.80	0.42-4.20	0.04-0.13	1.0-2.9	0.2-0.5	.37	.37			
310:														
Fitzwater, south	0-3	30-45	30-45	10-22	1.40-1.65	4.00-14.00	0.04-0.07	0.0-2.9	1.0-3.0	.05	.32	5	8	0
	3-7	55-70	25-35	10-15	1.19-1.39	14.00-42.00	0.04-0.08	0.0-2.9	1.0-2.0	.10	.20			
	7-33	25-70	20-45	16-30	1.24-1.46	14.00-42.00	0.01-0.11	0.0-5.9	0.5-1.0	.05	.28			
	33-60	30-70	20-45	15-25	1.27-1.39	14.00-42.00	0.01-0.07	0.0-5.9	0.1-0.5	.05	.28			
311:														
Fitzwater, north	0-3	30-45	30-45	10-22	1.40-1.65	4.00-14.00	0.05-0.12	0.0-2.9	1.0-3.0	.10	.32	5	7	38
	3-7	55-70	25-35	10-15	1.19-1.39	14.00-42.00	0.04-0.08	0.0-2.9	1.0-2.0	.10	.20			
	7-33	25-70	20-45	16-30	1.24-1.46	14.00-42.00	0.01-0.11	0.0-5.9	0.5-1.0	.05	.28			
	33-60	30-70	20-45	15-25	1.27-1.39	14.00-42.00	0.01-0.07	0.0-5.9	0.1-0.5	.05	.28			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
311:														
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
312:														
Flagstaff	0-1	80-90	5-15	1-10	1.37-1.50	42.00-141.00	0.05-0.08	0.0-2.9	0.5-2.0	.10	.10	5	2	134
	1-3	60-90	5-30	5-10	1.30-1.50	14.00-141.00	0.09-0.13	0.0-2.9	0.2-0.4	.20	.28			
	3-27	60-90	5-30	5-10	1.30-1.50	14.00-141.00	0.09-0.13	0.0-2.9	0.2-0.4	.28	.28			
	27-60	80-90	5-15	2-10	1.50-1.65	42.00-141.00	0.03-0.05	0.0-2.9	0.2-0.4	.10	.20			
313:														
Flagstaff, ashy very fine sandy loam surface	0-4	55-75	13-27	12-18	1.00-1.35	0.01-0.42	0.23-0.26	0.0-2.9	0.1-0.3	.55	.55	5	2	134
	4-12	5-45	35-60	20-35	1.00-1.35	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.3	.49	.49			
	12-16	5-25	55-60	20-35	1.17-1.37	0.42-1.40	0.29-0.32	0.0-5.9	0.1-0.2	.55	.55			
	16-43	5-25	40-63	20-35	1.17-1.37	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.2	.55	.55			
	43-69	5-25	40-60	20-35	1.18-1.36	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.2	.49	.49			
	69-80	60-85	11-25	4-15	1.43-1.46	42.00-142.00	0.14-0.26	0.0-2.9	0.0-0.1	.28	.28			
Flagstaff, ashy sandy loam surface	0-4	55-75	13-27	12-18	1.00-1.35	0.01-0.42	0.23-0.26	0.0-2.9	0.1-0.3	.32	.32	5	2	134
	4-12	5-45	35-60	20-35	1.00-1.35	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.3	.49	.49			
	12-16	5-25	55-60	20-35	1.17-1.37	0.42-1.40	0.29-0.32	0.0-5.9	0.1-0.2	.55	.55			
	16-43	5-25	40-63	20-35	1.17-1.37	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.2	.55	.55			
	43-69	5-25	40-60	20-35	1.18-1.36	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.2	.49	.49			
	69-80	60-85	11-25	4-15	1.43-1.46	42.00-142.00	0.14-0.26	0.0-2.9	0.0-0.1	.28	.28			
314:														
Flagstaff	0-4	10-40	55-75	10-18	1.00-1.35	0.01-0.42	0.23-0.26	0.0-2.9	0.1-0.3	.64	.64	5	4	86
	4-12	5-45	35-60	20-35	1.00-1.35	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.3	.49	.49			
	12-16	5-25	55-60	20-35	1.17-1.37	0.42-1.40	0.29-0.32	0.0-5.9	0.1-0.2	.55	.55			
	16-43	5-25	40-63	20-35	1.17-1.37	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.2	.55	.55			
	43-69	5-25	40-60	20-35	1.18-1.36	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.2	.49	.49			
	69-80	60-85	11-25	4-15	1.43-1.46	42.00-142.00	0.14-0.26	0.0-2.9	0.0-0.1	.28	.28			
Playas	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	5	4	86
	6-60			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
315:														
Flagstaff	0-4	55-75	13-27	12-18	1.00-1.35	0.01-0.42	0.23-0.26	0.0-2.9	0.1-0.3	.55	.55	5	2	134
	4-12	5-45	35-60	20-35	1.00-1.35	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.3	.49	.49			
	12-16	5-25	55-60	20-35	1.17-1.37	0.42-1.40	0.29-0.32	0.0-5.9	0.1-0.2	.55	.55			
	16-43	5-25	40-63	20-35	1.17-1.37	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.2	.55	.55			
	43-69	5-25	40-60	20-35	1.18-1.36	0.42-1.40	0.24-0.32	0.0-5.9	0.1-0.2	.49	.49			
	69-80	60-85	11-25	4-15	1.43-1.46	42.00-142.00	0.14-0.26	0.0-2.9	0.0-0.1	.28	.28			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
315:														
Salhouse-------------	0-5	75-85	5-20	2-8	0.99-1.34	42.00-141.00	0.15-0.17	0.0-2.9	0.1-0.3	.20	.20	5	1	220
	5-42	80-95	0-15	3-10	0.99-1.34	42.00-141.00	0.07-0.12	0.0-2.9	0.1-0.2	.10	.10			
	42-61	10-60	30-65	10-25	0.99-1.40	4.00-42.00	0.10-0.30	3.0-5.9	0.0-0.1	.43	.43			
316:														
Foleylake------------	0-2	35-50	39-47	10-18	1.36-1.41	4.00-14.00	0.07-0.12	0.0-2.9	0.3-0.5	.15	.37	2	7	38
	2-8	35-50	38-45	12-20	1.36-1.45	4.00-14.00	0.07-0.12	0.0-2.9	0.2-0.4	.15	.49			
	8-18	15-40	20-35	40-50	1.35-1.55	0.01-0.42	0.10-0.14	6.0-9.0	0.1-0.3	.15	.24			
	18-23	18-40	32-42	28-40	1.34-1.47	1.40-4.00	0.12-0.18	3.0-5.9	0.0-0.2	.20	.43			
	23-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Anawalt--------------	0-3	26-50	38-47	12-27	1.29-1.43	4.00-14.00	0.10-0.15	0.0-5.9	0.2-0.5	.10	.43	1	7	38
	3-7	5-42	30-35	28-60	1.34-1.50	0.42-4.00	0.09-0.19	3.0-9.0	0.1-0.4	.15	.28			
	7-18	5-43	22-35	35-60	1.40-1.55	0.42-1.40	0.08-0.19	3.0-9.0	0.0-0.3	.17	.28			
	18-28				---	---	---	---	---	---	---			
317:														
Fort Rock------------	0-5	55-70	15-35	5-15	1.00-1.35	14.00-42.00	0.13-0.18	0.0-2.9	1.0-2.0	.20	.20	2	2	134
	5-16	50-75	15-35	5-12	1.00-1.35	42.00-141.00	0.10-0.15	0.0-2.9	1.0-1.0	.28	.28			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.24	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.28	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.05	.05			
318:														
Fort Rock------------	0-5	55-75	12-40	4-15	1.00-1.35	14.00-42.00	0.10-0.16	0.0-2.9	1.0-2.0	.10	.20	3	4	86
	5-16	78-85	13-18	5-12	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-1.0	.10	.17			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			
319:														
Fort Rock------------	0-5	75-85	5-22	4-12	1.00-1.35	42.00-141.00	0.03-0.07	0.0-2.9	1.0-2.0	.02	.05	3	2	134
	5-16	78-85	13-18	5-12	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-1.0	.10	.17			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
319:														
Bonnick	0-3	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.06-0.11	0.0-2.9	1.0-3.0	.05	.10	4	2	134
	3-10	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	1.0-3.0	.10	.10			
	10-28	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	28-42	82-85	8-13	2-10	1.00-1.35	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.10	.20			
	42-45	75-85	8-13	2-12	1.00-1.35	42.00-141.00	0.02-0.08	0.0-2.9	0.5-1.0	.05	.20			
	45-60	90-100	0-8	0-2	1.00-1.35	141.00-141.00	0.01-0.04	0.0-2.9	0.0-0.0	.02	.02			
320:														
Fort Rock	0-5	75-85	6-20	2-12	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-2.0	.05	.05	3	1	220
	5-16	50-75	15-35	5-12	1.00-1.35	42.00-141.00	0.10-0.15	0.0-2.9	1.0-1.0	.20	.28			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			
Lapham	0-2	55-75	15-35	5-15	0.91-1.24	14.00-42.00	0.06-0.12	0.0-2.9	2.0-3.0	.10	.20	2	5	56
	2-16	55-85	5-30	5-15	0.94-1.29	14.00-42.00	0.08-0.17	0.0-2.9	1.0-2.0	.10	.17			
	16-20	35-50	40-45	10-20	0.98-1.33	14.00-42.00	0.05-0.11	0.0-2.9	0.3-0.5	.10	.49			
	20-60	55-70	25-30	5-15	0.99-1.34	14.00-42.00	0.02-0.08	0.0-2.9	0.1-0.3	.02	.28			
321:														
Fort Rock, warm	0-5	70-75	13-24	6-15	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	1.0-2.0	.05	.17	3	5	56
	5-16	50-75	15-35	5-12	1.00-1.35	42.00-141.00	0.10-0.15	0.0-2.9	1.0-1.0	.20	.28			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			
Lapham, warm	0-2	55-75	15-35	5-15	0.91-1.24	14.00-42.00	0.10-0.16	0.0-2.9	2.0-3.0	.15	.20	2	4	86
	2-16	55-85	5-30	5-15	0.94-1.29	14.00-42.00	0.08-0.17	0.0-2.9	1.0-2.0	.10	.17			
	16-20	35-50	40-45	10-20	0.98-1.33	14.00-42.00	0.05-0.11	0.0-2.9	0.3-0.5	.10	.49			
	20-60	55-70	25-30	5-15	0.99-1.34	14.00-42.00	0.02-0.08	0.0-2.9	0.1-0.3	.02	.28			
322:														
Fort Rock	0-5	70-75	13-24	6-15	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	1.0-2.0	.05	.17	3	5	56
	5-16	50-75	15-35	5-12	1.00-1.35	42.00-141.00	0.10-0.15	0.0-2.9	1.0-1.0	.20	.28			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
323:														
Fort Rock	0-5	75-85	6-20	2-12	1.00-1.35	42.00-141.00	0.05-0.08	0.0-2.9	1.0-2.0	.05	.05	3	1	220
	5-16	78-85	13-18	5-12	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-1.0	.10	.17			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
324:														
Fort Rock, moist	0-5	70-75	13-24	6-15	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	1.0-2.0	.05	.17	3	5	56
	5-16	50-75	15-35	5-12	1.00-1.35	42.00-141.00	0.10-0.15	0.0-2.9	1.0-1.0	.20	.28			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			
Morehouse, moist	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
325:														
Fort Rock	0-5	70-75	13-24	6-15	1.00-1.35	14.00-42.00	0.09-0.11	0.0-2.9	1.0-2.0	.05	.17	3	5	56
	5-16	50-75	15-35	5-12	1.00-1.35	42.00-141.00	0.10-0.15	0.0-2.9	1.0-1.0	.20	.28			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			
Suckerflat	0-8	75-85	5-20	4-10	0.90-1.30	14.00-42.00	0.07-0.12	1.0-2.9	1.0-3.0	.32	.32	1	1	220
	8-18	40-80	10-50	8-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43			
	18-28				---	---	---	---	---	---	---			
326:														
Fossilake	0-1	55-75	24-31	6-14	1.00-1.35	14.00-42.00	0.01-0.06	0.0-2.9	0.1-0.5	.28	.28	5	2	134
	1-3	65-75	17-29	8-16	1.00-1.35	4.00-14.00	0.01-0.06	0.0-2.9	0.1-0.4	.49	.49			
	3-15	15-50	15-69	10-26	1.00-1.35	4.00-14.00	0.02-0.16	0.0-5.9	0.0-0.3	.49	.49			
	15-31	30-88	4-46	8-24	1.00-1.35	4.00-141.00	0.05-0.24	0.0-5.9	0.0-0.3	.32	.32			
	31-43	25-45	31-40	24-35	1.00-1.35	1.40-14.00	0.06-0.24	3.0-5.9	0.0-0.2	.37	.37			
	43-66	15-50	32-68	18-27	1.00-1.35	4.00-14.00	0.06-0.27	3.0-5.9	0.0-0.1	.49	.49			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
327:														
Fossilake, cool------	0-1	75-85	5-15	4-10	1.00-1.35	42.00-141.00	0.04-0.06	0.0-2.9	0.1-0.5	.20	.20	5	1	220
	1-3	65-75	17-29	8-16	1.00-1.35	4.00-14.00	0.01-0.06	0.0-2.9	0.1-0.4	.49	.49			
	3-15	15-50	15-69	10-26	1.00-1.35	4.00-14.00	0.02-0.16	0.0-5.9	0.0-0.3	.49	.49			
	15-31	30-88	4-46	8-24	1.00-1.35	4.00-141.00	0.05-0.24	0.0-5.9	0.0-0.3	.32	.32			
	31-43	25-45	31-40	24-35	1.00-1.35	1.40-14.00	0.06-0.24	3.0-5.9	0.0-0.2	.37	.37			
	43-66	15-50	32-68	18-27	1.00-1.35	4.00-14.00	0.06-0.27	3.0-5.9	0.0-0.1	.49	.49			
Salhouse, cool-------	0-5	75-85	5-20	2-8	0.99-1.34	42.00-141.00	0.15-0.17	0.0-2.9	0.1-0.3	.20	.20	5	1	220
	5-42	80-95	0-15	3-10	0.99-1.34	42.00-141.00	0.07-0.12	0.0-2.9	0.1-0.2	.10	.10			
	42-61	10-60	30-65	10-25	0.99-1.40	4.00-42.00	0.10-0.30	3.0-5.9	0.0-0.1	.43	.43			
328:														
Giranch--------------	0-11	88-95	4-8	4-8	1.00-1.35	20.00-141.00	0.05-0.09	0.0-2.9	2.0-4.0	.24	.49	2	1	310
	11-23	20-55	15-45	30-40	1.00-1.35	1.40-4.00	0.11-0.21	3.0-5.9	2.0-4.0	.10	.37			
	23-29	10-45	10-40	40-55	1.15-1.50	0.42-1.40	0.07-0.14	6.0-9.0	0.2-0.5	.10	.28			
	29-33	20-45	20-50	27-40	1.40-1.50	1.40-4.00	0.16-0.21	3.0-5.9	0.2-0.5	.49	.49			
	33-60				---	0.01-0.42	0.00-0.00	---	---	---	---			
Meld-----------------	0-3	55-75	15-35	5-15	0.92-1.24	14.00-42.00	0.15-0.21	0.0-2.9	1.0-3.0	.28	.49	2	4	86
	3-16	25-40	32-42	27-32	0.92-1.24	4.00-14.00	0.24-0.30	3.0-5.9	1.0-3.0	.28	.28			
	16-33	25-40	30-40	30-35	0.97-1.27	1.40-4.00	0.14-0.24	1.0-5.9	0.5-1.0	.10	.37			
	33-40				---	0.01-0.42	0.00-0.00	---	---	---	---			
329:														
Glencabin, south-----	0-5	40-50	30-45	10-25	0.85-1.30	4.00-14.00	0.17-0.23	1.0-2.9	1.0-3.0	.20	.43	2	5	56
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			
330:														
Glencabin, north-----	0-5	40-50	30-45	10-25	0.85-1.30	4.00-14.00	0.17-0.23	1.0-2.9	1.0-3.0	.20	.43	2	5	56
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			
331:														
Glencabin, south-----	0-5	40-50	30-45	10-25	0.85-1.30	4.00-14.00	0.17-0.23	1.0-2.9	1.0-3.0	.20	.43	2	5	56
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			
332:														
Glencabin, south, dry	0-5	40-50	30-45	10-25	0.85-1.30	4.00-14.00	0.17-0.23	1.0-2.9	1.0-3.0	.20	.43	2	5	56
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
332:														
Glencabin, north, dry	0-5	40-50	30-45	10-25	0.85-1.30	4.00-14.00	0.17-0.23	1.0-2.9	1.0-3.0	.20	.43	2	5	56
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			
333:														
Glencabin	0-5	55-75	15-35	5-15	0.85-1.30	14.00-42.00	0.10-0.17	1.0-2.9	1.0-3.0	.10	.24	2	5	56
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
334:														
Glencabin	0-5	55-75	15-35	5-15	0.85-1.30	14.00-42.00	0.10-0.17	1.0-2.9	1.0-3.0	.10	.24	2	4	86
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
335:														
Glencabin, gravelly ashy loamy sand surface	0-5	75-85	5-25	4-10	0.85-1.30	42.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.20	2	1	220
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			
Glencabin, ashy loamy sand surface	0-5	75-85	5-25	4-10	0.85-1.30	42.00-141.00	0.07-0.12	1.0-2.9	1.0-3.0	.20	.20	2	1	220
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			
Wanoga	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.09-0.12	1.0-2.9	1.0-3.0	.05	.05			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
336:														
Glencabin	0-5	75-85	5-25	4-10	0.85-1.30	42.00-141.00	0.07-0.12	1.0-2.9	1.0-3.0	.20	.20	2	1	220
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
336:														
Yapoah	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-6	75-90	5-15	5-10	0.68-1.16	14.00-42.00	0.09-0.12	1.0-2.9	1.0-6.0	.05	.05			
	6-16	75-90	5-15	5-10	0.77-1.20	14.00-141.00	0.06-0.11	1.0-2.9	1.0-4.0	.05	.10			
	16-36	75-90	5-15	5-10	0.77-1.20	14.00-141.00	0.06-0.11	1.0-2.9	1.0-4.0	.02	.10			
	36-61	60-90	5-30	5-10	0.90-1.20	14.00-141.00	0.02-0.08	1.0-2.9	0.2-0.8	.02	.10			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
338:														
Goodtack	0-3	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55	1	2	134
	3-7	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55			
	7-19	50-70	20-30	18-26	1.00-1.35	4.00-42.00	0.18-0.23	1.0-2.9	0.2-1.0	.37	.37			
	19-46				---	0.01-0.42	0.00-0.00	---	---	---	---			
	46-56				---	---	---	---	---	---	---			
339:														
Goodtack, low precipitation	0-3	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55	1	2	134
	3-7	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55			
	7-19	50-70	20-30	18-26	1.00-1.35	4.00-42.00	0.18-0.23	1.0-2.9	0.2-1.0	.37	.37			
	19-46				---	0.01-0.42	0.00-0.00	---	---	---	---			
	46-56				---	---	---	---	---	---	---			
340:														
Goodtack	0-3	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.14-0.19	1.0-2.9	1.0-3.0	.37	.37	1	2	134
	3-7	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55			
	7-19	50-70	20-30	18-26	1.00-1.35	4.00-42.00	0.18-0.23	1.0-2.9	0.2-1.0	.37	.37			
	19-46				---	0.01-0.42	0.00-0.00	---	---	---	---			
	46-56				---	---	---	---	---	---	---			
Borobey	0-4	50-70	9-30	2-15	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.17	.32	5	4	86
	4-12	75-85	6-20	2-20	1.00-1.35	42.00-141.00	0.08-0.27	0.0-2.9	1.0-3.0	.28	.28			
	12-50	57-87	9-15	4-18	1.00-1.35	1.40-42.00	0.10-0.23	0.0-2.9	0.1-1.0	.37	.37			
	50-68	60-85	12-25	3-18	1.00-1.35	14.00-141.00	0.05-0.23	0.0-2.9	0.1-1.0	.15	.15			
341:														
Goodtack	0-3	75-88	5-20	4-10	1.00-1.35	42.00-141.00	0.12-0.16	1.0-2.9	1.0-3.0	.37	.37	1	1	220
	3-7	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55			
	7-19	50-70	20-30	18-26	1.00-1.35	4.00-42.00	0.18-0.23	1.0-2.9	0.2-1.0	.37	.37			
	19-46				---	0.01-0.42	0.00-0.00	---	---	---	---			
	46-56				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
341:														
Borobey	0-4	80-87	8-13	2-8	1.00-1.35	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.5	.15	.15	5	1	220
	4-12	75-85	6-20	2-20	1.00-1.35	42.00-141.00	0.08-0.27	0.0-2.9	1.0-3.0	.28	.28			
	12-50	57-87	9-15	4-18	1.00-1.35	1.40-42.00	0.10-0.23	0.0-2.9	0.1-1.0	.37	.37			
	50-68	60-85	12-25	3-18	1.00-1.35	14.00-141.00	0.05-0.23	0.0-2.9	0.1-1.0	.15	.15			
342:														
Goodtack	0-3	75-88	5-20	4-10	1.00-1.35	42.00-141.00	0.12-0.16	1.0-2.9	1.0-3.0	.37	.37	1	1	220
	3-7	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55			
	7-19	50-70	20-30	18-26	1.00-1.35	4.00-42.00	0.18-0.23	1.0-2.9	0.2-1.0	.37	.37			
	19-46				---	0.01-0.42	0.00-0.00	---	---	---	---			
	46-56				---	---	---	---	---	---	---			
Morehouse	0-5	88-98	4-10	3-8	0.97-1.27	42.00-141.00	0.05-0.08	0.0-2.9	0.5-1.0	.10	.10	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-60	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.17	.17			
343:														
Goodtack	0-3	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.14-0.19	1.0-2.9	1.0-3.0	.37	.37	1	2	134
	3-7	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55			
	7-19	50-70	20-30	18-26	1.00-1.35	4.00-42.00	0.18-0.23	1.0-2.9	0.2-1.0	.37	.37			
	19-46				---	0.01-0.42	0.00-0.00	---	---	---	---			
	46-56				---	---	---	---	---	---	---			
Sliptrack	0-3	60-70	20-25	8-17	0.88-1.24	14.00-42.00	0.15-0.20	0.0-2.9	2.0-4.0	.15	.28	2	4	86
	3-11	60-70	19-20	12-18	0.88-1.24	14.00-42.00	0.17-0.23	0.0-2.9	2.0-4.0	.28	.28			
	11-16	50-70	5-16	23-35	0.91-1.29	4.00-14.00	0.18-0.24	1.0-5.9	1.0-3.0	.28	.28			
	16-22	25-55	15-35	30-38	0.97-1.32	1.40-4.00	0.18-0.32	3.0-5.9	0.5-1.0	.32	.32			
	22-60				---	0.01-0.42	0.00-0.00	---	---	---	---			
344:														
Gradon	0-3	55-75	13-27	12-18	1.32-1.54	14.00-42.00	0.08-0.13	0.0-2.9	1.0-3.0	.15	.24	2	5	56
	3-10	30-50	35-45	15-25	1.21-1.41	4.00-14.00	0.14-0.18	1.0-5.9	1.0-3.0	.37	.37			
	10-22	25-55	20-40	25-35	1.29-1.53	1.40-14.00	0.11-0.20	1.0-5.9	0.5-1.0	.32	.32			
	22-32	55-75	11-27	14-18	1.46-1.60	14.00-42.00	0.08-0.11	0.0-2.9	0.5-1.0	.20	.32			
	32-48				---	0.01-0.42	0.00-0.00	---	---	---	---			
	48-55				---	0.01-0.42	0.00-0.00	---	---	---	---			
	55-62	55-70	25-30	5-15	1.50-1.55	14.00-42.00	0.07-0.13	0.0-2.9	0.0-0.1	.28	.28			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
345:														
Greenmountain	0-3	55-70	24-35	6-10	1.00-1.35	14.00-42.00	0.08-0.15	0.0-2.9	1.0-3.0	.15	.28	2	4	86
	3-13	55-75	15-31	10-14	1.00-1.35	14.00-42.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.24			
	13-17	55-75	9-25	16-20	1.00-1.35	4.00-14.00	0.11-0.16	0.0-2.9	0.5-0.8	.17	.24			
	17-24	50-75	8-22	17-28	1.00-1.35	4.00-14.00	0.14-0.21	0.0-5.9	0.1-0.5	.24	.24			
	24-37	55-75	13-25	12-20	1.00-1.35	4.00-14.00	0.12-0.20	0.0-2.9	0.0-0.3	.28	.43			
	37-42				---	0.01-0.42	0.00-0.00	---	---	---	---			
	42-65	55-75	13-25	12-20	1.00-1.35	4.00-14.00	0.00-0.00	0.0-2.9	0.0-0.0	.24	.32			
346:														
Greenmountain	0-3	55-70	24-35	6-10	1.00-1.35	14.00-42.00	0.14-0.18	0.0-2.9	1.0-3.0	.28	.28	2	2	134
	3-13	55-75	15-31	10-14	1.00-1.35	14.00-42.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.24			
	13-17	55-75	9-25	16-20	1.00-1.35	4.00-14.00	0.11-0.16	0.0-2.9	0.5-0.8	.17	.24			
	17-24	50-75	8-22	17-28	1.00-1.35	4.00-14.00	0.14-0.21	0.0-5.9	0.1-0.5	.24	.24			
	24-37	55-75	13-25	12-20	1.00-1.35	4.00-14.00	0.12-0.20	0.0-2.9	0.0-0.3	.28	.43			
	37-42				---	0.01-0.42	0.00-0.00	---	---	---	---			
	42-65	55-75	13-25	12-20	1.00-1.35	4.00-14.00	0.00-0.00	0.0-2.9	0.0-0.0	.24	.32			
Jacksplace	0-4	55-75	15-40	8-15	0.93-1.29	14.00-42.00	0.15-0.19	0.0-2.9	1.0-2.0	.32	.32	2	2	134
	4-9	60-75	15-30	8-12	0.93-1.29	14.00-42.00	0.11-0.17	0.0-2.9	1.0-2.0	.15	.24			
	9-12	55-70	15-25	16-19	0.97-1.32	4.00-14.00	0.06-0.12	0.0-2.9	0.5-1.0	.10	.32			
	12-20	50-65	15-20	18-28	0.97-1.34	4.00-14.00	0.06-0.15	3.0-5.9	0.1-0.5	.10	.55			
	20-26	55-70	15-25	16-19	0.99-1.35	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.3	.05	.28			
	26-30				---	---	---	---	---	---	---			
347:														
Greenmountain	0-3	55-70	24-35	6-10	1.00-1.35	14.00-42.00	0.18-0.22	0.0-2.9	1.0-3.0	.32	.32	2	2	134
	3-13	55-75	15-31	10-14	1.00-1.35	14.00-42.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.24			
	13-17	55-75	9-25	16-20	1.00-1.35	4.00-14.00	0.11-0.16	0.0-2.9	0.5-0.8	.17	.24			
	17-24	50-75	8-22	17-28	1.00-1.35	4.00-14.00	0.14-0.21	0.0-5.9	0.1-0.5	.24	.24			
	24-37	55-75	13-25	12-20	1.00-1.35	4.00-14.00	0.12-0.20	0.0-2.9	0.0-0.3	.28	.43			
	37-42				---	0.01-0.42	0.00-0.00	---	---	---	---			
	42-65	55-75	13-25	12-20	1.00-1.35	4.00-14.00	0.00-0.00	0.0-2.9	0.0-0.0	.24	.32			
Lastcall	0-2	75-85	5-20	3-10	0.92-1.29	14.00-42.00	0.12-0.14	0.0-2.9	1.0-3.0	.20	.20	2	1	220
	2-7	65-80	15-25	5-15	0.92-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-3.0	.10	.10			
	7-13	65-80	15-25	5-15	0.94-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-2.0	.20	.20			
	13-21	55-70	10-16	20-28	0.97-1.32	14.00-42.00	0.17-0.21	3.0-5.9	0.5-0.9	.20	.28			
	21-31	50-70	10-15	20-34	0.90-1.34	14.00-42.00	0.17-0.21	3.0-5.9	0.1-0.5	.15	.24			
	31-41				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
348:														
Greenmountain--------	0-3	55-70	24-35	6-10	1.00-1.35	14.00-42.00	0.14-0.18	0.0-2.9	1.0-3.0	.28	.28	2	2	134
	3-13	55-75	15-31	10-14	1.00-1.35	14.00-42.00	0.14-0.18	0.0-2.9	1.0-3.0	.24	.24			
	13-17	55-75	9-25	16-20	1.00-1.35	4.00-14.00	0.11-0.16	0.0-2.9	0.5-0.8	.17	.24			
	17-24	50-75	8-22	17-28	1.00-1.35	4.00-14.00	0.14-0.21	0.0-5.9	0.1-0.5	.24	.24			
	24-37	55-75	13-25	12-20	1.00-1.35	4.00-14.00	0.12-0.20	0.0-2.9	0.0-0.3	.28	.43			
	37-42				---	0.01-0.42	0.00-0.00	---	---	---	---			
	42-65	55-75	13-25	12-20	1.00-1.35	4.00-14.00	0.00-0.00	0.0-2.9	0.0-0.0	.24	.32			
Weglike--------------	0-3	75-85	5-20	4-10	0.91-1.19	14.00-42.00	0.08-0.12	1.0-2.9	2.0-3.0	.15	.15	2	1	220
	3-12	75-80	15-17	5-10	0.91-1.24	14.00-42.00	0.08-0.20	1.0-2.9	1.0-3.0	.24	.24			
	12-22	30-60	20-40	18-30	1.27-1.44	4.00-14.00	0.07-0.18	1.0-5.9	0.1-0.5	.20	.43			
	22-23	25-50	30-45	18-30	1.28-1.44	4.00-14.00	0.05-0.14	1.0-2.9	0.1-0.3	.05	.43			
	23-33				---	---	---	---	---	---	---			
349:														
Hackwood-------------	0-11	30-45	35-45	15-27	1.20-1.40	4.23-14.11	0.10-0.13	0.0-2.9	3.0-8.0	.17	.28	5	7	38
	11-23	30-45	35-48	18-27	1.30-1.40	4.23-14.11	0.07-0.13	0.0-2.9	1.0-4.0	.37	.37			
	23-48	30-45	35-48	18-30	1.40-1.50	4.23-14.11	0.07-0.11	0.0-2.9	0.5-1.0	.20	.37			
	48-60	30-45	35-45	18-30	1.40-1.50	4.23-14.11	0.05-0.10	0.0-2.9	0.5-1.0	.20	.37			
Westbutte, north-----	0-3	30-50	30-45	15-22	1.12-1.25	4.00-14.00	0.05-0.12	3.0-5.9	1.0-3.0	.10	.32	2	7	38
	3-11	30-50	25-45	18-30	1.20-1.25	1.40-14.00	0.05-0.13	3.0-5.9	1.0-3.0	.10	.37			
	11-21	30-50	25-45	18-30	1.20-1.30	1.40-14.00	0.05-0.15	3.0-5.9	0.6-2.0	.10	.37			
	21-31				---	---	---	---	---	---	---			
350:														
Hager, cobbly loam surface-------------	0-4	30-50	30-45	20-25	1.27-1.44	4.00-14.00	0.10-0.15	1.0-2.9	1.0-2.0	.15	.28	2	7	38
	4-8	30-50	30-45	20-25	1.36-1.50	4.00-14.00	0.05-0.15	1.0-2.9	0.2-0.4	.24	.37			
	8-24	5-30	45-60	25-35	1.36-1.44	1.40-4.00	0.13-0.20	1.0-5.9	0.1-0.3	.49	.49			
	24-37	30-50	35-45	15-25	1.39-1.50	4.00-14.00	0.10-0.17	0.0-5.9	0.0-0.2	.49	.49			
	37-42				---	0.01-0.42	0.00-0.00	---	---	---	---			
	42-52				---	---	---	---	---	---	---			
Hager, extremely stony loam surface--	0-4	30-50	30-45	20-25	1.27-1.44	4.00-14.00	0.10-0.15	1.0-2.9	1.0-2.0	.05	.28	2	8	0
	4-8	30-50	30-45	20-25	1.36-1.50	4.00-14.00	0.05-0.15	1.0-2.9	0.2-0.4	.24	.37			
	8-24	5-30	45-60	25-35	1.36-1.44	1.40-4.00	0.13-0.20	1.0-5.9	0.1-0.3	.49	.49			
	24-37	30-50	35-45	15-25	1.39-1.50	4.00-14.00	0.10-0.17	0.0-5.9	0.0-0.2	.49	.49			
	37-42				---	0.01-0.42	0.00-0.00	---	---	---	---			
	42-52				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
351:														
Hayespring	0-3	80-85	9-10	3-8	0.88-1.23	42.00-141.00	0.15-0.20	0.0-2.9	2.0-4.0	.24	.24	2	1	220
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			
352:														
Hayespring	0-3	55-75	15-30	10-16	0.88-1.23	14.00-42.00	0.10-0.17	0.0-2.9	2.0-4.0	.10	.20	2	4	86
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			
Dunres	0-4	55-75	15-27	10-18	0.85-1.25	14.00-42.00	0.17-0.24	0.0-2.9	1.0-3.0	.17	.28	1	4	86
	4-8	50-75	5-15	20-35	0.90-1.25	1.40-4.00	0.23-0.32	3.0-5.9	1.0-2.0	.24	.24			
	8-19	10-40	20-35	40-55	1.12-1.39	0.10-0.42	0.10-0.16	6.0-9.0	0.5-1.0	.24	.24			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-56				---	0.01-0.42	0.00-0.00	---	---	---	---			
	56-60				---	---	---	---	---	---	---			
353:														
Hayespring	0-3	55-75	15-30	10-16	0.88-1.23	14.00-42.00	0.18-0.22	0.0-2.9	2.0-4.0	.24	.24	2	2	134
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			
Moonbeam	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.19-0.22	0.0-2.9	1.0-3.0	.43	.43	1	2	134
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
354:														
Hayespring	0-3	35-50	30-48	10-20	0.88-1.23	14.00-42.00	0.16-0.22	0.0-2.9	2.0-4.0	.17	.32	2	6	48
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
354:														
Moonbeam	0-3	35-50	38-45	12-20	0.92-1.24	1.40-4.00	0.15-0.22	0.0-2.9	1.0-3.0	.28	.43	1	5	56
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
355:														
Hayespring, cobbly ashy loamy sand surface	0-3	75-88	5-22	2-10	0.88-1.23	14.00-42.00	0.07-0.11	0.0-2.9	2.0-4.0	.10	.24	2	1	220
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			
Moonbeam, cobbly ashy loam surface	0-3	35-50	38-45	12-20	0.92-1.24	1.40-4.00	0.15-0.22	0.0-2.9	1.0-3.0	.28	.43	1	5	56
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
356:														
Hayespring, low precipitation	0-3	55-75	15-30	12-16	0.88-1.23	14.00-42.00	0.12-0.18	0.0-2.9	2.0-4.0	.05	.20	2	5	56
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			
Moonbeam, low precipitation	0-3	35-50	38-45	12-20	0.92-1.24	1.40-4.00	0.12-0.18	0.0-2.9	1.0-3.0	.15	.43	1	6	48
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
357:														
Hayespring	0-3	55-75	15-30	10-16	0.88-1.23	14.00-42.00	0.10-0.13	0.0-2.9	2.0-4.0	.20	.20	2	2	134
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			
Senra	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.13-0.19	0.0-2.9	1.0-3.0	.32	.32	1	2	134
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
358:														
Helphenstein	0-2	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.49	.49	2	5	56
	2-8	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.64	.64			
	8-34	10-40	40-70	20-30	1.25-1.30	0.42-4.00	0.05-0.06	3.0-5.9	0.2-0.5	.49	.49			
	34-60	20-60	30-70	10-25	1.30-1.40	4.00-42.00	0.04-0.05	1.0-5.9	0.2-0.5	.43	.43			
359:														
Helphenstein, frequently ponded	0-2	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.49	.49	2	5	56
	2-8	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.64	.64			
	8-34	10-40	40-70	20-30	1.25-1.30	0.42-4.00	0.05-0.06	3.0-5.9	0.2-0.5	.49	.49			
	34-60	20-60	30-70	10-25	1.30-1.40	4.00-42.00	0.04-0.05	1.0-5.9	0.2-0.5	.43	.43			
360:														
Helphenstein	0-2	35-50	30-45	10-25	1.15-1.25	4.00-14.00	0.05-0.12	1.0-2.9	0.5-1.5	.10	.32	2	8	0
	2-8	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.64	.64			
	8-34	10-40	40-70	20-30	1.25-1.30	0.42-4.00	0.05-0.06	3.0-5.9	0.2-0.5	.49	.49			
	34-60	20-60	30-70	10-25	1.30-1.40	4.00-42.00	0.04-0.05	1.0-5.9	0.2-0.5	.43	.43			
361:														
Helphenstein	0-2	55-75	10-35	5-15	1.15-1.25	14.00-42.00	0.03-0.13	1.0-2.9	0.5-1.5	.32	.32	2	3	86
	2-8	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.64	.64			
	8-34	10-40	40-70	20-30	1.25-1.30	0.42-4.00	0.05-0.06	3.0-5.9	0.2-0.5	.49	.49			
	34-60	20-60	30-70	10-25	1.30-1.40	4.00-42.00	0.04-0.05	1.0-5.9	0.2-0.5	.43	.43			
Kewake	0-4	75-88	4-20	2-10	0.98-1.35	14.00-42.00	0.09-0.11	0.0-2.9	0.1-0.5	.28	.28	5	1	220
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
362:														
Helphenstein, frequently ponded---	0-4	5-15	55-60	30-35	0.98-1.34	4.00-14.00	0.29-0.32	3.0-5.9	0.1-0.5	.37	.37	5	5	56
	4-9	5-15	55-60	30-35	0.98-1.34	4.00-14.00	0.26-0.32	3.0-5.9	0.1-0.5	.37	.37			
	9-18	60-70	25-30	5-12	0.99-1.35	4.00-14.00	0.14-0.20	0.0-2.9	0.0-0.3	.32	.32			
	18-60	40-60	30-45	8-15	0.99-1.35	4.00-14.00	0.17-0.26	0.0-2.9	0.0-0.2	.49	.49			
Legler---------------	0-4	30-50	30-50	18-26	1.20-1.30	4.00-14.00	0.14-0.18	1.0-2.9	0.5-1.0	.37	.37	5	6	48
	4-8	25-60	20-40	18-35	1.20-1.35	1.40-42.00	0.16-0.21	1.0-5.9	0.2-0.5	.37	.37			
	8-43	25-60	20-40	18-35	1.20-1.35	1.40-42.00	0.16-0.21	1.0-5.9	0.2-0.5	.37	.37			
	43-61	25-60	25-60	18-25	1.20-1.35	4.00-14.00	0.14-0.21	1.0-2.9	0.2-0.5	.37	.37			
Playas---------------	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	5	4	86
	6-60			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
363:														
Helphenstein, frequently ponded---	0-2	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.49	.49	2	5	56
	2-8	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.64	.64			
	8-34	10-40	40-70	20-30	1.25-1.30	0.42-4.00	0.05-0.06	3.0-5.9	0.2-0.5	.49	.49			
	34-60	20-60	30-70	10-25	1.30-1.40	4.00-42.00	0.04-0.05	1.0-5.9	0.2-0.5	.43	.43			
Pitcheranch----------	0-8	5-15	45-65	27-32	0.86-1.12	1.40-4.00	0.19-0.21	3.0-5.9	4.0-10	.37	.37	5	6	48
	8-35	10-30	50-80	18-27	1.09-1.25	4.00-14.00	0.19-0.21	1.0-2.9	1.0-4.0	.43	.43			
	35-62	15-60	20-80	12-32	1.20-1.30	1.40-42.00	0.11-0.21	1.0-5.9	0.2-1.0	.37	.37			
Reese----------------	0-4	10-30	55-75	10-25	1.25-1.35	4.00-14.00	0.02-0.05	0.0-2.9	1.0-3.0	.49	.49	2	4L	86
	4-10	30-50	30-48	10-25	1.30-1.45	1.40-4.00	0.01-0.03	0.0-2.9	0.5-1.0	.37	.37			
	10-33	25-50	30-48	20-30	1.30-1.50	0.42-1.40	0.01-0.03	3.0-5.9	0.0-0.5	.37	.37			
	33-44	30-75	15-48	10-25	1.40-1.55	4.00-14.00	0.03-0.06	0.0-2.9	0.0-0.5	.43	.43			
	44-60	30-75	15-48	10-25	1.40-1.55	1.40-4.00	0.05-0.08	0.0-2.9	0.0-0.5	.37	.37			
364:														
Helphenstein---------	0-2	55-75	10-35	5-15	1.15-1.25	14.00-42.00	0.03-0.13	1.0-2.9	0.5-1.5	.32	.32	2	3	86
	2-8	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.64	.64			
	8-34	10-40	40-70	20-30	1.25-1.30	0.42-4.00	0.05-0.06	3.0-5.9	0.2-0.5	.49	.49			
	34-60	20-60	30-70	10-25	1.30-1.40	4.00-42.00	0.04-0.05	1.0-5.9	0.2-0.5	.43	.43			
Turpin---------------	0-3	50-70	5-20	22-33	1.28-1.30	4.00-14.00	0.14-0.16	1.0-2.9	0.4-1.0	.17	.17	5	5	56
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
364:														
Kewake	0-4	90-95	1-5	2-5	0.98-1.35	14.00-42.00	0.02-0.07	0.0-2.9	0.1-0.5	.05	.05	5	1	250
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
365:														
Henkle	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	5	56
	1-6	55-70	20-25	5-18	0.81-1.11	14.00-42.00	0.12-0.20	1.0-2.9	2.0-4.0	.15	.24			
	6-16	35-70	25-45	5-20	0.84-1.18	14.00-42.00	0.11-0.21	1.0-2.9	0.5-2.0	.32	.55			
	16-20	35-70	25-45	5-20	0.88-1.18	14.00-42.00	0.03-0.14	1.0-2.9	0.4-0.8	.15	.55			
	20-30				---	---	---	---	---	---	---			
Ludi	0-3	75-85	5-20	4-10	0.88-1.23	14.00-42.00	0.04-0.07	0.0-2.9	2.0-4.0	.05	.17	4	2	134
	3-12	40-70	20-42	10-18	0.91-1.29	14.00-42.00	0.05-0.17	0.0-2.9	1.0-3.0	.15	.37			
	12-35	55-70	21-30	8-15	0.97-1.34	14.00-42.00	0.02-0.11	0.0-2.9	0.1-0.9	.10	.49			
	35-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.02	.05			
366:														
Henkle	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	6	48
	1-6	75-85	5-20	5-10	0.81-1.11	42.00-141.00	0.05-0.07	1.0-2.9	2.0-4.0	.05	.24			
	6-16	35-70	25-45	5-20	0.84-1.18	14.00-42.00	0.11-0.21	1.0-2.9	0.5-2.0	.32	.55			
	16-20	35-70	25-45	5-20	0.88-1.18	14.00-42.00	0.03-0.14	1.0-2.9	0.4-0.8	.15	.55			
	20-30				---	---	---	---	---	---	---			
Wanoga	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.09-0.12	1.0-2.9	1.0-3.0	.10	.10			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
367:														
Henkle, dry	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-6	55-70	20-25	5-18	0.81-1.11	14.00-42.00	0.15-0.20	1.0-2.9	2.0-4.0	.24	.24			
	6-16	35-70	25-45	5-20	0.84-1.18	14.00-42.00	0.11-0.21	1.0-2.9	0.5-2.0	.32	.55			
	16-20	35-70	25-45	5-20	0.88-1.18	14.00-42.00	0.03-0.14	1.0-2.9	0.4-0.8	.15	.55			
	20-30				---	---	---	---	---	---	---			
Wanoga, dry	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	3	86
	1-8	55-75	10-35	5-15	0.90-1.30	42.00-141.00	0.16-0.19	1.0-2.9	1.0-3.0	.20	.20			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
368:														
Horning	0-4	80-85	9-15	2-10	0.95-1.32	14.00-42.00	0.07-0.12	0.0-2.9	0.5-1.5	.15	.15	5	1	220
	4-26	80-95	5-10	2-10	0.95-1.32	14.00-141.00	0.01-0.16	0.0-2.9	0.5-1.5	.17	.17			
	26-40	55-70	25-35	5-10	0.97-1.32	14.00-42.00	0.06-0.21	0.0-2.9	0.5-1.0	.37	.37			
	40-58	80-85	5-10	5-10	0.95-1.32	14.00-42.00	0.03-0.16	0.0-2.9	0.5-1.8	.24	.24			
	58-85	15-65	25-60	10-25	0.97-1.32	4.00-14.00	0.02-0.27	0.0-2.9	0.5-0.8	.43	.43			
369:														
Horning	0-4	80-85	9-15	2-10	0.95-1.32	14.00-42.00	0.07-0.12	0.0-2.9	0.5-1.5	.15	.15	5	1	220
	4-26	80-95	5-10	2-10	0.95-1.32	14.00-141.00	0.01-0.16	0.0-2.9	0.5-1.5	.17	.17			
	26-40	55-70	25-35	5-10	0.97-1.32	14.00-42.00	0.06-0.21	0.0-2.9	0.5-1.0	.37	.37			
	40-58	80-85	5-10	5-10	0.95-1.32	14.00-42.00	0.03-0.16	0.0-2.9	0.5-1.8	.24	.24			
	58-85	15-65	25-60	10-25	0.97-1.32	4.00-14.00	0.02-0.27	0.0-2.9	0.5-0.8	.43	.43			
Tonor	0-3	55-75	15-35	5-15	0.98-1.34	14.00-42.00	0.16-0.20	1.0-2.9	0.2-0.5	.37	.37	5	2	134
	3-11	20-50	40-60	10-20	0.99-1.34	4.00-42.00	0.24-0.32	0.0-2.9	0.1-0.3	.43	.43			
	11-43	25-65	20-50	15-25	0.99-1.34	1.40-14.00	0.13-0.31	1.0-5.9	0.1-0.3	.28	.28			
	43-60	10-30	55-65	15-25	0.99-1.35	1.40-4.00	0.26-0.31	1.0-5.9	0.0-0.2	.55	.55			
370:														
Icene	0-3	50-70	15-40	5-18	1.20-1.25	4.00-14.00	0.04-0.17	0.0-2.9	0.5-1.5	.37	.37	5	5	56
	3-7	50-70	15-40	5-18	1.20-1.25	4.00-14.00	0.04-0.17	0.0-2.9	0.5-1.5	.49	.49			
	7-41	15-45	30-60	20-30	1.25-1.30	1.40-14.00	0.04-0.05	3.0-5.9	0.2-1.2	.37	.37			
	41-60	20-65	20-60	10-20	1.25-1.30	4.00-14.00	0.03-0.04	0.0-2.9	0.2-0.6	.32	.32			
Playas	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	5	4	86
	6-60			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
371:														
Ipsoot	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-90	---	---	3	3	86
	1-5	78-85	15-18	0-5	0.49-0.84	141.00-705.00	0.08-0.11	0.0-2.9	0.2-0.5	.15	.15			
	5-18	78-85	15-18	0-5	0.49-0.85	141.00-705.00	0.08-0.11	0.0-2.9	0.1-0.4	.17	.17			
	18-31	78-100	0-19	0-3	0.50-0.85	141.00-705.00	0.06-0.09	0.0-2.9	0.1-0.3	.02	.02			
	31-61	95-100	0-5	0-0	1.10-1.30	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.0	---	---			
372:														
Ipsoot, north	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-90	---	---	3	3	86
	1-5	78-85	15-18	0-5	0.49-0.84	141.00-705.00	0.08-0.11	0.0-2.9	0.2-0.5	.15	.15			
	5-18	78-85	15-18	0-5	0.49-0.85	141.00-705.00	0.08-0.11	0.0-2.9	0.1-0.4	.17	.17			
	18-31	78-100	0-19	0-3	0.50-0.85	141.00-705.00	0.06-0.09	0.0-2.9	0.1-0.3	.02	.02			
	31-61	95-100	0-5	0-0	1.10-1.30	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.0	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
373:														
Ipsoot, south---------	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-90	---	---	3	3	86
	1-5	78-85	15-18	0-5	0.49-0.84	141.00-705.00	0.08-0.11	0.0-2.9	0.2-0.5	.15	.15			
	5-18	78-85	15-18	0-5	0.49-0.85	141.00-705.00	0.08-0.11	0.0-2.9	0.1-0.4	.17	.17			
	18-31	78-100	0-19	0-3	0.50-0.85	141.00-705.00	0.06-0.09	0.0-2.9	0.1-0.3	.02	.02			
	31-61	95-100	0-5	0-0	1.10-1.30	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.0	---	---			
374:														
Jacksplace, moist----	0-4	55-75	15-40	8-15	0.93-1.29	14.00-42.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	2	2	134
	4-9	60-75	15-30	8-12	0.93-1.29	14.00-42.00	0.11-0.17	0.0-2.9	1.0-2.0	.15	.24			
	9-12	55-70	15-25	16-19	0.97-1.32	4.00-14.00	0.06-0.12	0.0-2.9	0.5-1.0	.10	.32			
	12-20	50-65	15-20	18-28	0.97-1.34	4.00-14.00	0.06-0.15	3.0-5.9	0.1-0.5	.10	.55			
	20-26	55-70	15-25	16-19	0.99-1.35	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.3	.05	.28			
	26-30				---	---	---	---	---	---	---			
375:														
Jacksplace-----------	0-4	80-90	5-10	8-10	0.93-1.29	14.00-42.00	0.09-0.12	0.0-2.9	1.0-2.0	.17	.17	2	1	220
	4-9	60-85	5-30	8-12	0.93-1.29	14.00-42.00	0.09-0.17	0.0-2.9	1.0-2.0	.10	.17			
	9-12	55-70	15-25	16-19	0.97-1.32	4.00-14.00	0.06-0.12	0.0-2.9	0.5-1.0	.10	.32			
	12-20	50-65	15-20	18-28	0.97-1.34	4.00-14.00	0.06-0.15	3.0-5.9	0.1-0.5	.10	.55			
	20-26	55-70	15-25	16-19	0.99-1.35	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.3	.05	.28			
	26-30				---	---	---	---	---	---	---			
376:														
Jacksplace-----------	0-4	55-70	15-40	8-15	0.93-1.29	14.00-42.00	0.15-0.21	0.0-2.9	1.0-2.0	.28	.49	2	4	86
	4-9	60-75	15-30	8-12	0.93-1.29	14.00-42.00	0.11-0.17	0.0-2.9	1.0-2.0	.15	.24			
	9-12	55-70	15-25	16-19	0.97-1.32	4.00-14.00	0.06-0.12	0.0-2.9	0.5-1.0	.10	.32			
	12-20	50-65	15-20	18-28	0.97-1.34	4.00-14.00	0.06-0.15	3.0-5.9	0.1-0.5	.10	.55			
	20-26	55-70	15-25	16-19	0.99-1.35	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.3	.05	.28			
	26-30				---	---	---	---	---	---	---			
377:														
Jacksplace-----------	0-4	80-90	5-10	8-10	0.93-1.29	14.00-42.00	0.12-0.15	0.0-2.9	1.0-2.0	.15	.24	2	1	220
	4-9	60-85	5-30	8-12	0.93-1.29	14.00-42.00	0.09-0.17	0.0-2.9	1.0-2.0	.10	.17			
	9-12	55-70	15-25	16-19	0.97-1.32	4.00-14.00	0.06-0.12	0.0-2.9	0.5-1.0	.10	.32			
	12-20	50-65	15-20	18-28	0.97-1.34	4.00-14.00	0.06-0.15	3.0-5.9	0.1-0.5	.10	.55			
	20-26	55-70	15-25	16-19	0.99-1.35	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.3	.05	.28			
	26-30				---	---	---	---	---	---	---			
378:														
Jacksplace-----------	0-4	55-70	15-40	8-15	0.93-1.29	14.00-42.00	0.15-0.21	0.0-2.9	1.0-2.0	.32	.49	2	4	86
	4-9	60-75	15-30	8-12	0.93-1.29	14.00-42.00	0.11-0.17	0.0-2.9	1.0-2.0	.15	.24			
	9-12	55-70	15-25	16-19	0.97-1.32	4.00-14.00	0.06-0.12	0.0-2.9	0.5-1.0	.10	.32			
	12-20	50-65	15-20	18-28	0.97-1.34	4.00-14.00	0.06-0.15	3.0-5.9	0.1-0.5	.10	.55			
	20-26	55-70	15-25	16-19	0.99-1.35	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.3	.05	.28			
	26-30				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
378:														
Derallo	0-1	55-65	17-35	10-18	1.00-1.35	14.00-42.00	0.05-0.09	1.0-2.9	1.5-4.0	.05	.28	4	7	38
	1-12	30-50	30-45	18-26	1.00-1.35	14.00-42.00	0.06-0.11	3.0-5.9	1.0-4.0	.05	.49			
	12-36	30-60	20-45	22-35	1.00-1.35	1.40-14.00	0.06-0.18	3.0-5.9	0.5-3.0	.05	.49			
	36-41	55-70	10-35	10-18	1.00-1.35	14.00-42.00	0.06-0.14	1.0-2.9	0.2-0.5	.10	.37			
	41-51				---	---	---	---	---	---	---			
Glencabin	0-5	88-95	4-8	2-8	0.85-1.30	42.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.05	.10	2	1	250
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			
379:														
Jacksplace	0-4	55-70	15-40	8-15	0.93-1.29	14.00-42.00	0.15-0.21	0.0-2.9	1.0-2.0	.28	.49	2	4	86
	4-9	60-75	15-30	8-12	0.93-1.29	14.00-42.00	0.11-0.17	0.0-2.9	1.0-2.0	.15	.24			
	9-12	55-70	15-25	16-19	0.97-1.32	4.00-14.00	0.06-0.12	0.0-2.9	0.5-1.0	.10	.32			
	12-20	50-65	15-20	18-28	0.97-1.34	4.00-14.00	0.06-0.15	3.0-5.9	0.1-0.5	.10	.55			
	20-26	55-70	15-25	16-19	0.99-1.35	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.3	.05	.28			
	26-30				---	---	---	---	---	---	---			
Senra	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.15-0.21	0.0-2.9	1.0-3.0	.28	.49	1	4	86
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
380:														
Kewake	0-4	75-88	4-20	2-10	0.98-1.35	14.00-42.00	0.06-0.08	0.0-2.9	0.1-0.5	.20	.20	5	1	220
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
382:														
Kewake	0-4	75-88	4-20	2-10	0.98-1.35	14.00-42.00	0.09-0.11	0.0-2.9	0.1-0.5	.28	.28	5	1	220
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
Helphenstein, frequently ponded	0-2	55-75	10-35	5-15	1.15-1.25	14.00-42.00	0.03-0.13	1.0-2.9	0.5-1.5	.32	.32	2	3	86
	2-8	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.64	.64			
	8-34	10-40	40-70	20-30	1.25-1.30	0.42-4.00	0.05-0.06	3.0-5.9	0.2-0.5	.49	.49			
	34-60	20-60	30-70	10-25	1.30-1.40	4.00-42.00	0.04-0.05	1.0-5.9	0.2-0.5	.43	.43			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
383:														
Kewake----------------	0-4	90-95	1-5	2-5	0.98-1.35	14.00-42.00	0.02-0.07	0.0-2.9	0.1-0.5	.05	.05	5	1	250
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
Helphenstein, dry----	0-2	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.49	.49	2	5	56
	2-8	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.64	.64			
	8-34	10-40	40-70	20-30	1.25-1.30	0.42-4.00	0.05-0.06	3.0-5.9	0.2-0.5	.49	.49			
	34-60	20-60	30-70	10-25	1.30-1.40	4.00-42.00	0.04-0.05	1.0-5.9	0.2-0.5	.43	.43			
384:														
Kewake----------------	0-4	90-95	1-5	2-5	0.98-1.35	14.00-42.00	0.02-0.07	0.0-2.9	0.1-0.5	.05	.05	5	1	250
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
Icene-----------------	0-3	50-70	15-40	5-18	1.20-1.25	4.00-14.00	0.04-0.17	0.0-2.9	0.5-1.5	.37	.37	5	5	56
	3-7	50-70	15-40	5-18	1.20-1.25	4.00-14.00	0.04-0.17	0.0-2.9	0.5-1.5	.49	.49			
	7-41	15-45	30-60	20-30	1.25-1.30	1.40-14.00	0.04-0.05	3.0-5.9	0.2-1.2	.37	.37			
	41-60	20-65	20-60	10-20	1.25-1.30	4.00-14.00	0.03-0.04	0.0-2.9	0.2-0.6	.32	.32			
385:														
Kewake----------------	0-4	90-95	1-5	2-5	0.98-1.35	14.00-42.00	0.02-0.07	0.0-2.9	0.1-0.5	.05	.05	5	1	250
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
Ozamis----------------	0-10	5-15	45-55	40-50	1.05-1.33	1.40-4.00	0.04-0.15	3.0-5.9	2.0-4.0	.20	.20	5	4	86
	10-34	5-45	30-55	25-45	1.09-1.25	1.40-4.00	0.19-0.21	3.0-5.9	1.0-3.0	.43	.43			
	34-36	90-98	2-8	2-6	1.20-1.40	42.00-141.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	36-60	10-65	20-55	10-32	1.00-1.35	1.40-42.00	0.11-0.21	1.0-5.9	0.5-1.0	.43	.43			
Reese-----------------	0-4	55-75	15-35	5-15	1.20-1.40	4.00-14.00	0.01-0.03	0.0-2.9	1.0-3.0	.49	.49	2	3	86
	4-10	30-50	30-48	10-25	1.30-1.45	1.40-4.00	0.01-0.03	0.0-2.9	0.5-1.0	.37	.37			
	10-33	25-50	30-48	20-30	1.30-1.50	0.42-1.40	0.01-0.03	3.0-5.9	0.0-0.5	.37	.37			
	33-44	30-75	15-48	10-25	1.40-1.55	4.00-14.00	0.03-0.06	0.0-2.9	0.0-0.5	.43	.43			
	44-60	30-75	15-48	10-25	1.40-1.55	1.40-4.00	0.05-0.08	0.0-2.9	0.0-0.5	.37	.37			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
386:														
Kewake	0-4	75-88	4-20	2-10	0.98-1.35	14.00-42.00	0.06-0.08	0.0-2.9	0.1-0.5	.20	.20	5	1	220
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
Turpin	0-3	50-70	10-40	5-18	1.25-1.30	14.00-42.00	0.13-0.15	1.0-2.9	0.4-1.0	.37	.37	5	3	86
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
387:														
Kewake, sodic	0-4	75-88	4-20	2-10	0.98-1.35	14.00-42.00	0.06-0.08	0.0-2.9	0.1-0.5	.20	.20	5	1	220
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
Turpin, sodic	0-3	50-70	10-40	5-18	1.25-1.30	14.00-42.00	0.11-0.13	1.0-2.9	0.4-1.0	.32	.32	5	3	86
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
388:														
Krackle, north	0-4	55-70	15-30	10-25	1.20-1.30	4.23-14.11	0.11-0.14	0.0-2.9	1.0-3.0	.15	.28	2	5	56
	4-15	30-45	25-40	25-35	1.20-1.30	1.41-4.23	0.10-0.15	3.0-5.9	1.0-2.0	.10	.32			
	15-30	30-45	25-40	25-35	1.20-1.30	1.41-4.23	0.10-0.15	3.0-5.9	0.0-0.5	.10	.37			
	30-40				---	---	---	---	---	---	---			
Krackle, south	0-4	55-70	15-30	10-25	1.20-1.30	4.23-14.11	0.11-0.14	0.0-2.9	1.0-3.0	.15	.28	2	5	56
	4-15	30-45	25-40	25-35	1.20-1.30	1.41-4.23	0.10-0.15	3.0-5.9	1.0-2.0	.10	.32			
	15-30	30-45	25-40	25-35	1.20-1.30	1.41-4.23	0.10-0.15	3.0-5.9	0.0-0.5	.10	.37			
	30-40				---	---	---	---	---	---	---			
389:														
Kunceider	0-5	80-85	5-10	5-10	0.92-1.23	14.00-42.00	0.06-0.09	0.0-2.9	2.0-3.0	.10	.17	1	1	220
	5-9	80-85	5-10	5-10	0.94-1.30	14.00-42.00	0.03-0.08	0.0-2.9	1.0-2.0	.05	.24			
	9-14	65-85	10-20	5-15	0.98-1.34	14.00-42.00	0.03-0.12	0.0-2.9	0.1-0.5	.05	.28			
	14-24				---	---	---	---	---	---	---			
390:														
Kunceider	0-5	55-75	15-35	5-15	0.92-1.23	14.00-42.00	0.15-0.19	0.0-2.9	2.0-3.0	.32	.32	1	2	134
	5-9	80-85	5-10	5-10	0.94-1.30	14.00-42.00	0.03-0.08	0.0-2.9	1.0-2.0	.05	.24			
	9-14	65-85	10-20	5-15	0.98-1.34	14.00-42.00	0.03-0.12	0.0-2.9	0.1-0.5	.05	.28			
	14-24				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
390:														
Fort Rock	0-5	75-85	6-20	2-12	1.00-1.35	42.00-141.00	0.05-0.08	0.0-2.9	1.0-2.0	.05	.05	3	1	220
	5-16	78-85	13-18	5-12	1.00-1.35	42.00-141.00	0.06-0.10	0.0-2.9	1.0-1.0	.10	.17			
	16-28	79-85	13-16	5-12	1.00-1.35	42.00-141.00	0.06-0.12	0.0-2.9	0.1-0.5	.20	.20			
	28-35	82-85	8-13	2-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.1-0.2	.10	.24			
	35-39	65-85	13-25	2-10	1.50-1.55	14.00-141.00	0.04-0.11	0.0-2.9	0.1-0.2	.10	.28			
	39-60	90-97	2-5	1-5	1.50-1.58	42.00-141.00	0.01-0.03	0.0-2.9	0.1-0.2	.02	.02			
391:														
Kunceider	0-5	80-85	5-10	5-10	0.92-1.23	14.00-42.00	0.06-0.09	0.0-2.9	2.0-3.0	.10	.17	1	1	220
	5-9	80-85	5-10	5-10	0.94-1.30	14.00-42.00	0.03-0.08	0.0-2.9	1.0-2.0	.05	.24			
	9-14	65-85	10-20	5-15	0.98-1.34	14.00-42.00	0.03-0.12	0.0-2.9	0.1-0.5	.05	.28			
	14-24				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
392:														
Kunceider	0-5	80-85	5-10	5-10	0.92-1.23	14.00-42.00	0.07-0.12	0.0-2.9	2.0-3.0	.17	.17	1	1	220
	5-9	80-85	5-10	5-10	0.94-1.30	14.00-42.00	0.03-0.08	0.0-2.9	1.0-2.0	.05	.24			
	9-14	65-85	10-20	5-15	0.98-1.34	14.00-42.00	0.03-0.12	0.0-2.9	0.1-0.5	.05	.28			
	14-24				---	---	---	---	---	---	---			
Wegert	0-2	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.07-0.12	1.0-2.9	2.0-3.0	.15	.15	2	1	220
	2-6	75-85	5-15	5-10	0.95-1.30	42.00-141.00	0.08-0.12	1.0-2.9	1.0-2.0	.10	.10			
	6-27	60-85	5-25	5-15	1.00-1.35	42.00-141.00	0.08-0.12	1.0-2.9	0.4-0.8	.17	.17			
	27-31	75-85	5-15	5-10	1.00-1.35	42.00-141.00	0.02-0.08	1.0-2.9	0.2-0.6	.05	.28			
	31-41				---	---	---	---	---	---	---			
393:														
Laidlaw	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-5	75-88	4-20	5-10	0.80-0.90	42.34-141.14	0.07-0.12	0.0-2.9	1.0-4.0	.02	.02			
	5-13	75-88	4-20	2-10	0.80-0.90	42.34-141.14	0.10-0.13	0.0-2.9	1.0-2.0	.20	.20			
	13-31	75-88	4-20	2-10	0.80-0.90	42.34-141.14	0.10-0.13	0.0-2.9	1.0-2.0	.17	.17			
	31-37	70-88	4-35	5-15	0.90-1.00	14.11-42.34	0.12-0.22	0.0-2.9	0.0-0.5	.15	.24			
	37-50	70-88	4-35	5-15	0.90-1.00	14.11-42.34	0.12-0.22	0.0-2.9	0.0-0.5	.32	.32			
	50-60	75-88	4-35	2-10	0.90-1.00	14.11-141.14	0.12-0.22	0.0-2.9	0.0-0.5	.32	.32			
394:														
Laidlaw	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-5	75-88	4-20	5-10	0.80-0.90	42.34-141.14	0.15-0.18	0.0-2.9	1.0-4.0	.10	.10			
	5-13	75-88	4-20	2-10	0.80-0.90	42.34-141.14	0.10-0.13	0.0-2.9	1.0-2.0	.20	.20			
	13-31	75-88	4-20	2-10	0.80-0.90	42.34-141.14	0.10-0.13	0.0-2.9	1.0-2.0	.17	.17			
	31-37	70-88	4-35	5-15	0.90-1.00	14.11-42.34	0.12-0.22	0.0-2.9	0.0-0.5	.15	.24			
	37-50	70-88	4-35	5-15	0.90-1.00	14.11-42.34	0.12-0.22	0.0-2.9	0.0-0.5	.32	.32			
	50-60	75-88	4-35	2-10	0.90-1.00	14.11-141.14	0.12-0.22	0.0-2.9	0.0-0.5	.32	.32			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
395:														
Laidlaw, dry	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-5	75-88	4-20	5-10	0.80-0.90	42.34-141.14	0.15-0.18	0.0-2.9	1.0-4.0	.05	.05			
	5-13	75-88	4-20	2-10	0.80-0.90	42.34-141.14	0.10-0.13	0.0-2.9	1.0-2.0	.20	.20			
	13-31	75-88	4-20	2-10	0.80-0.90	42.34-141.14	0.10-0.13	0.0-2.9	1.0-2.0	.17	.17			
	31-37	70-88	4-35	5-15	0.90-1.00	14.11-42.34	0.12-0.22	0.0-2.9	0.0-0.5	.15	.24			
	37-50	70-88	4-35	5-15	0.90-1.00	14.11-42.34	0.12-0.22	0.0-2.9	0.0-0.5	.32	.32			
	50-60	75-88	4-35	2-10	0.90-1.00	14.11-141.14	0.12-0.22	0.0-2.9	0.0-0.5	.32	.32			
Wanoga, dry	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.09-0.12	1.0-2.9	1.0-3.0	.10	.10			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
397:														
Lapham	0-2	80-85	9-15	5-7	0.91-1.24	14.00-42.00	0.06-0.17	0.0-2.9	2.0-3.0	.10	.10	2	1	220
	2-16	55-85	5-30	5-15	0.94-1.29	14.00-42.00	0.08-0.17	0.0-2.9	1.0-2.0	.10	.15			
	16-20	35-50	40-45	10-20	0.98-1.33	14.00-42.00	0.05-0.11	0.0-2.9	0.3-0.5	.10	.49			
	20-60	55-70	25-30	5-15	0.99-1.34	14.00-42.00	0.02-0.08	0.0-2.9	0.1-0.3	.02	.28			
398:														
Lapine, north	0-4	80-85	0-15	1-5	0.50-0.85	141.00-705.00	0.08-0.11	0.0-2.9	0.1-0.3	.10	.10	5	2	134
	4-12	80-100	0-15	1-5	0.50-0.85	141.00-705.00	0.06-0.11	0.0-2.9	0.0-0.2	.17	.17			
	12-56	95-100	0-2	1-3	0.50-0.85	141.00-705.00	0.06-0.09	0.0-2.9	0.0-0.2	.02	.02			
	56-60	5-65	20-60	15-35	1.29-1.40	0.42-4.00	0.17-0.32	1.0-5.9	0.0-0.2	.49	.49			
399:														
Lapine	0-4	80-85	0-15	1-5	0.50-0.85	141.00-705.00	0.08-0.11	0.0-2.9	0.1-0.3	.10	.10	5	2	134
	4-12	80-100	0-15	1-5	0.50-0.85	141.00-705.00	0.06-0.11	0.0-2.9	0.0-0.2	.17	.17			
	12-56	95-100	0-2	1-3	0.50-0.85	141.00-705.00	0.06-0.09	0.0-2.9	0.0-0.2	.02	.02			
	56-60	5-65	20-60	15-35	1.29-1.40	0.42-4.00	0.17-0.32	1.0-5.9	0.0-0.2	.49	.49			
400:														
Lapine	0-4	80-85	0-15	1-5	0.50-0.85	141.00-705.00	0.08-0.11	0.0-2.9	0.1-0.3	.10	.10	5	2	134
	4-12	80-100	0-15	1-5	0.50-0.85	141.00-705.00	0.06-0.11	0.0-2.9	0.0-0.2	.17	.17			
	12-56	95-100	0-2	1-3	0.50-0.85	141.00-705.00	0.06-0.09	0.0-2.9	0.0-0.2	.02	.02			
	56-60	5-65	20-60	15-35	1.29-1.40	0.42-4.00	0.17-0.32	1.0-5.9	0.0-0.2	.49	.49			
401:														
Lastcall	0-2	65-70	20-25	5-15	0.92-1.29	4.00-14.00	0.15-0.19	0.0-2.9	1.0-3.0	.20	.20	2	2	134
	2-7	65-80	15-25	5-15	0.92-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-3.0	.10	.10			
	7-13	65-80	15-25	5-15	0.94-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-2.0	.20	.20			
	13-21	55-70	10-16	20-28	0.97-1.32	14.00-42.00	0.17-0.21	3.0-5.9	0.5-0.9	.20	.28			
	21-31	50-70	10-15	20-34	0.90-1.34	14.00-42.00	0.17-0.21	3.0-5.9	0.1-0.5	.15	.24			
	31-41				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
402:														
Lastcall, gently sloping	0-2	65-70	20-25	5-15	0.92-1.29	4.00-14.00	0.15-0.19	0.0-2.9	1.0-3.0	.20	.20	2	2	134
	2-7	65-80	15-25	5-15	0.92-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-3.0	.10	.10			
	7-13	65-80	15-25	5-15	0.94-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-2.0	.20	.20			
	13-21	55-70	10-16	20-28	0.97-1.32	14.00-42.00	0.17-0.21	3.0-5.9	0.5-0.9	.20	.28			
	21-31	50-70	10-15	20-34	0.90-1.34	14.00-42.00	0.17-0.21	3.0-5.9	0.1-0.5	.15	.24			
	31-41				---	---	---	---	---	---	---			
Lastcall, nearly level	0-2	65-70	20-25	5-15	0.92-1.29	4.00-14.00	0.15-0.19	0.0-2.9	1.0-3.0	.20	.20	2	2	134
	2-7	65-80	15-25	5-15	0.92-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-3.0	.10	.10			
	7-13	65-80	15-25	5-15	0.94-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-2.0	.20	.20			
	13-21	55-70	10-16	20-28	0.97-1.32	14.00-42.00	0.17-0.21	3.0-5.9	0.5-0.9	.20	.28			
	21-31	50-70	10-15	20-34	0.90-1.34	14.00-42.00	0.17-0.21	3.0-5.9	0.1-0.5	.15	.24			
	31-41				---	---	---	---	---	---	---			
403:														
Lastcall	0-2	65-70	20-25	5-15	0.92-1.29	4.00-14.00	0.15-0.19	0.0-2.9	1.0-3.0	.20	.20	2	2	134
	2-7	65-80	15-25	5-15	0.92-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-3.0	.10	.10			
	7-13	65-80	15-25	5-15	0.94-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-2.0	.20	.20			
	13-21	55-70	10-16	20-28	0.97-1.32	14.00-42.00	0.17-0.21	3.0-5.9	0.5-0.9	.20	.28			
	21-31	50-70	10-15	20-34	0.90-1.34	14.00-42.00	0.17-0.21	3.0-5.9	0.1-0.5	.15	.24			
	31-41				---	---	---	---	---	---	---			
Hayespring	0-3	55-75	15-30	10-16	0.88-1.23	14.00-42.00	0.15-0.20	0.0-2.9	2.0-4.0	.10	.24	2	4	86
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			
404:														
Lastcall	0-2	65-70	20-25	5-15	0.92-1.29	14.00-42.00	0.18-0.22	0.0-2.9	1.0-3.0	.24	.24	2	2	134
	2-7	65-80	15-25	5-15	0.92-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-3.0	.10	.10			
	7-13	65-80	15-25	5-15	0.94-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-2.0	.20	.20			
	13-21	55-70	10-16	20-28	0.97-1.32	14.00-42.00	0.17-0.21	3.0-5.9	0.5-0.9	.20	.28			
	21-31	50-70	10-15	20-34	0.90-1.34	14.00-42.00	0.17-0.21	3.0-5.9	0.1-0.5	.15	.24			
	31-41				---	---	---	---	---	---	---			
Hayespring	0-3	55-75	15-30	10-16	0.88-1.23	14.00-42.00	0.10-0.13	0.0-2.9	2.0-4.0	.20	.20	2	2	134
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
405:														
Lastcall	0-2	65-70	20-25	5-15	0.92-1.29	4.00-14.00	0.15-0.19	0.0-2.9	1.0-3.0	.20	.20	2	2	134
	2-7	65-80	15-25	5-15	0.92-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-3.0	.10	.10			
	7-13	65-80	15-25	5-15	0.94-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-2.0	.20	.20			
	13-21	55-70	10-16	20-28	0.97-1.32	14.00-42.00	0.17-0.21	3.0-5.9	0.5-0.9	.20	.28			
	21-31	50-70	10-15	20-34	0.90-1.34	14.00-42.00	0.17-0.21	3.0-5.9	0.1-0.5	.15	.24			
	31-41				---	---	---	---	---	---	---			
Jacksplace	0-4	75-88	5-25	8-10	0.93-1.29	42.00-141.00	0.12-0.17	0.0-2.9	1.0-2.0	.28	.28	2	1	220
	4-9	60-75	15-30	8-12	0.93-1.29	14.00-42.00	0.11-0.17	0.0-2.9	1.0-2.0	.15	.24			
	9-12	55-70	15-25	16-19	0.97-1.32	4.00-14.00	0.06-0.12	0.0-2.9	0.5-1.0	.10	.32			
	12-20	50-65	15-20	18-28	0.97-1.34	4.00-14.00	0.06-0.15	3.0-5.9	0.1-0.5	.10	.55			
	20-26	55-70	15-25	16-19	0.99-1.35	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.3	.05	.28			
	26-30				---	---	---	---	---	---	---			
Embal	0-2	10-40	55-80	10-22	1.00-1.35	4.00-14.00	0.25-0.33	1.0-2.9	1.0-3.0	.43	.43	4	5	56
	2-6	30-75	20-60	10-18	0.90-1.30	4.00-42.00	0.13-0.18	1.0-2.9	1.0-2.0	.28	.28			
	6-25	30-75	20-60	10-18	0.90-1.30	4.00-42.00	0.13-0.18	1.0-2.9	1.0-2.0	.28	.28			
	25-34	55-75	20-35	10-18	0.95-1.35	14.00-42.00	0.05-0.11	1.0-2.9	0.2-1.0	.20	.32			
	34-42	55-75	20-35	10-18	1.60-1.70	14.00-42.00	0.08-0.14	1.0-2.9	0.2-0.5	.15	.32			
	42-60	55-75	20-35	10-18	1.70-2.00	0.42-1.40	0.08-0.14	1.0-2.9	0.2-0.5	.15	.32			
407:														
Lastcall	0-2	65-70	20-25	5-15	0.92-1.29	14.00-42.00	0.10-0.17	0.0-2.9	1.0-3.0	.10	.20	2	4	86
	2-7	65-80	15-25	5-15	0.92-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-3.0	.10	.10			
	7-13	65-80	15-25	5-15	0.94-1.29	14.00-42.00	0.08-0.19	0.0-2.9	1.0-2.0	.20	.20			
	13-21	55-70	10-16	20-28	0.97-1.32	14.00-42.00	0.17-0.21	3.0-5.9	0.5-0.9	.20	.28			
	21-31	50-70	10-15	20-34	0.90-1.34	14.00-42.00	0.17-0.21	3.0-5.9	0.1-0.5	.15	.24			
	31-41				---	---	---	---	---	---	---			
Moonbeam	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.12-0.18	0.0-2.9	1.0-3.0	.24	.43	1	4	86
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
408:														
Leevan	0-3	30-50	30-45	18-25	1.25-1.30	4.00-14.00	0.05-0.13	1.0-2.9	0.5-1.0	.10	.32	2	8	0
	3-16	25-50	30-45	18-35	1.28-1.32	1.40-4.00	0.04-0.15	3.0-5.9	0.2-0.6	.10	.32			
	16-22	30-50	30-45	18-27	1.25-1.30	4.00-14.00	0.05-0.13	1.0-2.9	0.2-0.5	.10	.37			
	22-32				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
408:														
Fitzwater, south	0-3	80-85	10-13	3-8	1.40-1.65	14.00-42.00	0.02-0.05	0.0-2.9	1.0-3.0	.05	.15	5	3	86
	3-7	55-70	25-35	10-15	1.19-1.39	14.00-42.00	0.04-0.08	0.0-2.9	1.0-2.0	.10	.20			
	7-33	25-70	20-45	16-30	1.24-1.46	14.00-42.00	0.01-0.11	0.0-5.9	0.5-1.0	.05	.28			
	33-60	30-70	20-45	15-25	1.27-1.39	14.00-42.00	0.01-0.07	0.0-5.9	0.1-0.5	.05	.28			
Chen	0-24	30-50	30-45	18-27	1.08-1.15	4.00-14.00	0.07-0.11	1.0-2.9	1.0-2.0	.05	.24	3	8	0
	24-31	30-50	30-45	18-27	1.10-1.15	4.00-14.00	0.05-0.11	1.0-2.9	0.4-0.8	.10	.43			
	31-41	50-70	15-30	10-18	1.34-1.40	14.00-42.00	0.04-0.08	1.0-2.9	0.2-1.1	.10	.37			
	41-51				---	---	---	---	---	---	---			
409:														
Leevan, north	0-3	30-50	35-45	15-25	1.14-1.24	4.00-14.00	0.08-0.12	1.0-2.9	1.0-3.0	.10	.32	2	8	0
	3-7	25-50	30-45	20-32	1.18-1.24	4.00-14.00	0.09-0.11	1.0-2.9	1.0-2.0	.15	.32			
	7-16	20-40	30-35	30-50	1.17-1.28	0.42-4.00	0.10-0.17	1.0-8.9	0.3-0.7	.15	.37			
	16-31	15-40	20-30	40-60	1.08-1.24	0.42-1.40	0.06-0.10	1.0-8.9	0.1-0.5	.10	.32			
	31-41				---	---	---	---	---	---	---			
Lambring, north	0-5	35-50	30-48	10-24	1.22-1.27	4.00-14.00	0.05-0.12	0.0-5.9	2.0-3.0	.10	.32	3	7	38
	5-20	55-70	20-26	10-18	1.22-1.27	14.00-42.00	0.04-0.08	0.0-2.9	2.0-3.0	.05	.20			
	20-50	45-85	10-32	5-15	1.36-1.59	14.00-42.00	0.01-0.05	0.0-2.9	0.1-0.5	.05	.24			
	50-60				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
410:														
Legler	0-4	25-45	30-44	28-38	1.20-1.30	1.40-4.00	0.17-0.21	3.0-5.9	0.5-1.0	.37	.37	5	6	48
	4-8	25-60	20-40	18-35	1.20-1.35	1.40-42.00	0.16-0.21	1.0-5.9	0.2-0.5	.37	.37			
	8-43	25-60	20-40	18-35	1.20-1.35	1.40-42.00	0.16-0.21	1.0-5.9	0.2-0.5	.37	.37			
	43-61	25-60	25-60	18-25	1.20-1.35	4.00-14.00	0.14-0.21	1.0-2.9	0.2-0.5	.37	.37			
411:														
Bridgewell	0-7	20-40	30-40	18-24	1.35-1.40	4.00-14.00	0.16-0.18	0.0-2.9	0.4-1.0	.55	.55	5	5	56
	7-12	20-40	30-60	20-30	1.15-1.30	1.40-14.00	0.16-0.18	3.0-5.9	0.2-0.6	.55	.55			
	12-60	20-70	20-60	10-18	1.38-1.41	4.00-42.00	0.15-0.17	0.0-2.9	0.2-0.4	.43	.43			
Legler	0-4	30-50	30-50	18-26	1.20-1.30	4.00-14.00	0.14-0.18	1.0-2.9	0.5-1.0	.37	.37	5	6	48
	4-8	25-60	20-40	18-35	1.20-1.35	1.40-42.00	0.16-0.21	1.0-5.9	0.2-0.5	.37	.37			
	8-43	25-60	20-40	18-35	1.20-1.35	1.40-42.00	0.16-0.21	1.0-5.9	0.2-0.5	.37	.37			
	43-61	25-60	25-60	18-25	1.20-1.35	4.00-14.00	0.14-0.21	1.0-2.9	0.2-0.5	.37	.37			
412:														
Bridgewell	0-7	20-40	30-40	18-24	1.35-1.40	4.00-14.00	0.16-0.18	0.0-2.9	0.4-1.0	.55	.55	5	5	56
	7-12	20-40	30-60	20-30	1.15-1.30	1.40-14.00	0.16-0.18	3.0-5.9	0.2-0.6	.55	.55			
	12-60	20-70	20-60	10-18	1.38-1.41	4.00-42.00	0.15-0.17	0.0-2.9	0.2-0.4	.43	.43			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
412:														
Chancelakes	0-1	5-35	57-75	8-20	1.11-1.36	4.00-14.00	0.38-0.42	0.0-2.9	0.1-0.5	.64	.64	5	4	86
	1-10	5-40	25-50	35-45	1.40-1.49	0.42-1.40	0.14-0.21	3.0-9.0	0.1-0.4	.28	.28			
	10-29	10-40	23-50	35-60	1.40-1.52	0.01-1.40	0.12-0.20	3.0-13.0	0.1-0.3	.24	.24			
	29-58	5-40	25-40	35-60	1.40-1.50	0.01-1.40	0.12-0.20	3.0-13.0	0.1-0.2	.32	.32			
	58-63	25-65	5-35	30-40	1.28-1.53	1.40-4.00	0.26-0.39	3.0-9.0	0.1-0.1	.20	.20			
413:														
Lithic Haploxerolls, cool	0-2	55-70	15-30	10-18	0.95-1.35	14.00-42.00	0.03-0.06	1.0-2.9	1.0-2.0	.02	.37	1	7	38
	2-11	30-70	15-40	10-30	0.97-1.60	1.40-42.00	0.03-0.11	1.0-5.9	1.0-2.0	.05	.37			
	11-21				---	---	---	---	---	---	---			
Lava flows	0-60				---	---	---	---	---	---	---	---	---	---
414:														
Lithic Haploxerolls, dry	0-2	55-70	15-30	10-18	0.95-1.35	14.00-42.00	0.18-0.22	1.0-2.9	1.0-2.0	.37	.37	1	2	134
	2-11	30-70	15-40	10-30	0.97-1.60	1.40-42.00	0.03-0.11	1.0-5.9	1.0-2.0	.05	.37			
	11-21				---	---	---	---	---	---	---			
Lava flows	0-60				---	---	---	---	---	---	---	---	---	---
415:														
Locane	0-2	25-40	30-45	27-30	1.20-1.25	1.41-4.00	0.13-0.18	3.0-5.9	0.5-1.0	.24	.37	1	7	38
	2-10	25-40	30-45	27-30	1.20-1.30	1.41-4.00	0.16-0.21	3.0-5.9	0.2-0.7	.37	.37			
	10-18	15-40	20-35	35-50	1.20-1.40	0.42-1.41	0.05-0.10	6.0-9.0	0.2-0.4	.10	.32			
	18-28				---	---	---	---	---	---	---			
416:														
Locane	0-2	25-40	30-45	27-30	1.20-1.25	1.41-4.00	0.13-0.18	3.0-5.9	0.5-1.0	.24	.37	1	7	38
	2-10	25-40	30-45	27-30	1.20-1.30	1.41-4.00	0.16-0.21	3.0-5.9	0.2-0.7	.37	.37			
	10-18	15-40	20-35	35-50	1.20-1.40	0.42-1.41	0.05-0.10	6.0-9.0	0.2-0.4	.10	.32			
	18-28				---	---	---	---	---	---	---			
Anawalt	0-3	26-50	38-47	12-27	1.29-1.43	4.00-14.00	0.10-0.15	0.0-5.9	0.2-0.5	.43	.43	1	5	56
	3-7	5-42	30-35	28-60	1.34-1.50	0.42-4.00	0.09-0.19	3.0-9.0	0.1-0.4	.15	.28			
	7-18	5-43	22-35	35-60	1.40-1.55	0.42-1.40	0.08-0.19	3.0-9.0	0.0-0.3	.17	.28			
	18-28				---	---	---	---	---	---	---			
417:														
Locane	0-2	55-75	15-35	5-15	1.20-1.25	14.00-42.00	0.04-0.08	1.0-2.9	0.5-1.0	.15	.43	1	6	48
	2-10	25-40	30-45	27-30	1.20-1.30	1.41-4.00	0.16-0.21	3.0-5.9	0.2-0.7	.37	.37			
	10-18	15-40	20-35	35-50	1.20-1.40	0.42-1.41	0.05-0.10	6.0-9.0	0.2-0.4	.10	.32			
	18-28				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
417:														
Deseed---------------	0-2	50-70	10-30	10-18	1.37-1.43	14.00-42.00	0.04-0.08	1.0-2.9	0.2-1.0	.10	.28	2	6	48
	2-6	30-50	30-45	14-22	1.20-1.30	4.00-14.00	0.10-0.15	1.0-2.9	0.2-1.0	.17	.37			
	6-11	17-30	10-40	35-40	1.10-1.30	0.42-1.40	0.14-0.20	6.0-9.0	0.2-0.5	.20	.37			
	11-17	17-30	10-45	35-50	1.10-1.30	0.42-1.40	0.14-0.20	6.0-9.0	0.2-0.5	.32	.32			
	17-24	30-70	5-40	30-40	1.30-1.35	0.42-1.40	0.09-0.14	6.0-9.0	0.2-0.4	.10	.24			
	24-34				---	---	---	---	---	---	---			
418:														
Locolake-------------	0-2	55-70	20-30	8-15	1.37-1.39	4.00-14.00	0.01-0.05	0.0-2.9	0.1-0.5	.05	.32	1	8	0
	2-4	55-70	20-30	10-16	1.37-1.39	4.00-14.00	0.09-0.12	0.0-2.9	0.1-0.5	.32	.32			
	4-7	25-60	10-35	32-40	1.41-1.44	1.40-4.00	0.01-0.18	3.0-5.9	0.1-0.5	.32	.32			
	7-12	30-65	10-35	27-35	1.27-1.29	1.40-4.00	0.00-0.12	3.0-5.9	0.1-0.5	.37	.37			
	12-19	30-45	35-45	20-27	1.27-1.29	1.40-4.00	0.00-0.08	0.0-2.9	0.1-0.5	.05	.43			
	19-23				---	0.01-0.42	0.00-0.00	---	---	---	---			
	23-33				---	---	---	---	---	---	---			
419:														
Locolake-------------	0-2	55-70	20-30	8-15	1.37-1.39	4.00-14.00	0.12-0.15	0.0-2.9	0.1-0.5	.37	.37	1	3	86
	2-4	55-70	20-30	10-16	1.37-1.39	4.00-14.00	0.09-0.12	0.0-2.9	0.1-0.5	.32	.32			
	4-7	25-60	10-35	32-40	1.41-1.44	1.40-4.00	0.01-0.18	3.0-5.9	0.1-0.5	.32	.32			
	7-12	30-65	10-35	27-35	1.27-1.29	1.40-4.00	0.00-0.12	3.0-5.9	0.1-0.5	.37	.37			
	12-19	30-45	35-45	20-27	1.27-1.29	1.40-4.00	0.00-0.08	0.0-2.9	0.1-0.5	.05	.43			
	19-23				---	0.01-0.42	0.00-0.00	---	---	---	---			
	23-33				---	---	---	---	---	---	---			
McConnel-------------	0-1	75-85	5-20	2-10	1.50-1.90	14.00-42.00	0.04-0.07	1.0-2.9	0.2-1.0	.10	.15	3	2	134
	1-12	40-75	15-40	5-15	1.50-1.90	14.00-42.00	0.11-0.18	1.0-2.9	0.2-0.5	.24	.24			
	12-18	60-90	4-30	5-15	1.80-2.00	14.00-42.00	0.01-0.10	1.0-2.9	0.2-0.4	.10	.17			
	18-60	80-95	2-10	3-10	1.80-2.00	42.00-141.00	0.01-0.05	1.0-2.9	0.2-0.3	.02	.02			
420:														
Lostforest-----------	0-2	60-75	25-30	5-10	0.98-1.34	14.00-42.00	0.20-0.26	0.0-2.9	0.1-0.5	.28	.28	2	2	134
	2-5	60-70	25-30	5-10	0.98-1.34	14.00-42.00	0.18-0.23	0.0-2.9	0.1-0.5	.37	.37			
	5-11	35-50	40-45	8-20	0.98-1.34	14.00-42.00	0.15-0.26	0.0-2.9	0.1-0.5	.55	.55			
	11-18	35-50	40-45	8-20	0.98-1.34	14.00-42.00	0.14-0.23	0.0-2.9	0.1-0.5	.24	.55			
	18-22	35-50	40-45	12-20	0.98-1.34	14.00-42.00	0.15-0.23	0.0-2.9	0.1-0.5	.28	.49			
	22-32				---	---	---	---	---	---	---			
Sandrock-------------	0-3	55-80	10-35	10-18	1.10-1.35	14.00-42.00	0.14-0.20	1.0-2.9	0.6-0.8	.24	.37	1	4	86
	3-8	55-80	10-35	12-20	1.10-1.35	14.00-42.00	0.14-0.20	1.0-2.9	0.2-0.6	.20	.28			
	8-12	30-60	10-40	20-30	1.00-1.25	4.00-42.00	0.15-0.21	1.0-2.9	0.2-0.4	.17	.28			
	12-22				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
420:														
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
422:														
Ludi	0-3	55-70	22-30	8-15	0.88-1.23	14.00-42.00	0.12-0.19	0.0-2.9	2.0-4.0	.15	.24	3	4	86
	3-12	40-70	20-42	10-18	0.91-1.29	14.00-42.00	0.05-0.17	0.0-2.9	1.0-3.0	.15	.37			
	12-35	55-70	21-30	8-15	0.97-1.34	14.00-42.00	0.02-0.11	0.0-2.9	0.1-0.9	.10	.49			
	35-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.02	.05			
423:														
Ludi, low precipitation, north	0-3	55-70	22-30	8-15	0.88-1.23	14.00-42.00	0.10-0.17	0.0-2.9	2.0-4.0	.10	.20	3	4	86
	3-12	40-70	20-42	10-18	0.91-1.29	14.00-42.00	0.05-0.17	0.0-2.9	1.0-3.0	.15	.37			
	12-35	55-70	21-30	8-15	0.97-1.34	14.00-42.00	0.02-0.11	0.0-2.9	0.1-0.9	.10	.49			
	35-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.02	.05			
424:														
Ludi, low precipitation, south	0-3	55-70	22-30	8-15	0.88-1.23	14.00-42.00	0.10-0.17	0.0-2.9	2.0-4.0	.10	.20	3	4	86
	3-12	40-70	20-42	10-18	0.91-1.29	14.00-42.00	0.05-0.17	0.0-2.9	1.0-3.0	.15	.37			
	12-35	55-70	21-30	8-15	0.97-1.34	14.00-42.00	0.02-0.11	0.0-2.9	0.1-0.9	.10	.49			
	35-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.02	.05			
425:														
Ludi, low precipitation, north	0-3	55-70	22-30	8-15	0.88-1.23	14.00-42.00	0.10-0.17	0.0-2.9	2.0-4.0	.10	.20	3	4	86
	3-12	40-70	20-42	10-18	0.91-1.29	14.00-42.00	0.05-0.17	0.0-2.9	1.0-3.0	.15	.37			
	12-35	55-70	21-30	8-15	0.97-1.34	14.00-42.00	0.02-0.11	0.0-2.9	0.1-0.9	.10	.49			
	35-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.02	.05			
426:														
Ludi, low precipitation, south	0-3	55-70	22-30	8-15	0.88-1.23	14.00-42.00	0.10-0.17	0.0-2.9	2.0-4.0	.10	.20	3	4	86
	3-12	40-70	20-42	10-18	0.91-1.29	14.00-42.00	0.05-0.17	0.0-2.9	1.0-3.0	.15	.37			
	12-35	55-70	21-30	8-15	0.97-1.34	14.00-42.00	0.02-0.11	0.0-2.9	0.1-0.9	.10	.49			
	35-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.02	.05			
427:														
Ludi	0-3	55-75	15-35	8-15	0.88-1.23	14.00-42.00	0.06-0.12	0.0-2.9	2.0-4.0	.10	.24	3	5	56
	3-12	40-70	20-42	10-18	0.91-1.29	14.00-42.00	0.05-0.17	0.0-2.9	1.0-3.0	.15	.37			
	12-35	55-70	21-30	8-15	0.97-1.34	14.00-42.00	0.02-0.11	0.0-2.9	0.1-0.9	.10	.49			
	35-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.02	.05			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
428:														
Ludi, south	0-3	55-70	22-30	8-15	0.88-1.23	14.00-42.00	0.03-0.06	0.0-2.9	2.0-4.0	.02	.20	3	7	38
	3-12	40-70	20-42	10-18	0.91-1.29	14.00-42.00	0.05-0.17	0.0-2.9	1.0-3.0	.15	.37			
	12-35	55-70	21-30	8-15	0.97-1.34	14.00-42.00	0.02-0.11	0.0-2.9	0.1-0.9	.10	.49			
	35-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.02	.05			
Glassbutte	0-4	88-98	2-8	2-8	1.15-1.25	42.00-141.00	0.05-0.10	0.0-2.9	1.0-2.0	.05	.15	4	1	250
	4-12	55-80	15-40	5-14	1.15-1.25	14.00-42.00	0.06-0.14	1.0-2.9	1.0-2.0	.05	.24			
	12-22	55-80	15-40	10-18	1.15-1.30	14.00-42.00	0.06-0.14	1.0-2.9	0.8-1.5	.05	.20			
	22-36	75-85	5-10	5-10	1.20-1.30	14.00-42.00	0.02-0.05	1.0-2.9	0.2-0.6	.02	.05			
	36-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.05	.05			
Ludi, north	0-3	55-70	22-30	8-15	0.88-1.23	14.00-42.00	0.10-0.17	0.0-2.9	2.0-4.0	.10	.20	3	4	86
	3-12	40-70	20-42	10-18	0.91-1.29	14.00-42.00	0.05-0.17	0.0-2.9	1.0-3.0	.15	.37			
	12-35	55-70	21-30	8-15	0.97-1.34	14.00-42.00	0.02-0.11	0.0-2.9	0.1-0.9	.10	.49			
	35-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.02	.05			
429:														
Ludi	0-3	55-70	22-30	8-15	0.88-1.23	14.00-42.00	0.06-0.12	0.0-2.9	2.0-4.0	.05	.20	3	5	56
	3-12	40-70	20-42	10-18	0.91-1.29	14.00-42.00	0.05-0.17	0.0-2.9	1.0-3.0	.15	.37			
	12-35	55-70	21-30	8-15	0.97-1.34	14.00-42.00	0.02-0.11	0.0-2.9	0.1-0.9	.10	.49			
	35-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.02	.05			
Glassbutte	0-4	55-80	15-40	5-14	1.15-1.25	14.00-42.00	0.06-0.14	1.0-2.9	1.0-2.0	.05	.24	3	5	56
	4-12	55-80	15-40	5-14	1.15-1.25	14.00-42.00	0.06-0.14	1.0-2.9	1.0-2.0	.05	.24			
	12-22	55-80	15-40	10-18	1.15-1.30	14.00-42.00	0.06-0.14	1.0-2.9	0.8-1.5	.05	.20			
	22-36	75-85	5-10	5-10	1.20-1.30	14.00-42.00	0.02-0.05	1.0-2.9	0.2-0.6	.02	.05			
	36-60	95-100	0-5	0-0	1.40-1.60	141.00-705.00	0.00-0.02	0.0-2.9	0.0-0.5	.05	.05			
430:														
Lyeflat	0-2	90-100	0-6	2-8	1.00-1.50	42.00-141.00	0.06-0.09	1.0-2.9	0.2-0.6	.10	.10	2	1	180
	2-15	80-90	5-15	6-12	1.65-1.75	42.00-141.00	0.05-0.07	1.0-2.9	0.2-0.6	.10	.10			
	15-22	80-90	5-15	6-12	1.65-1.75	42.00-141.00	0.01-0.04	1.0-2.9	0.2-0.6	.10	.24			
	22-32				---	---	---	---	---	---	---			
431:														
Lyeflat	0-3	50-75	15-35	12-18	1.37-1.39	14.00-42.00	0.06-0.11	0.0-2.9	0.1-0.5	.15	.49	1	6	48
	3-11	40-75	15-40	12-18	1.37-1.39	14.00-42.00	0.03-0.16	0.0-2.9	0.1-0.5	.17	.32			
	11-21				---	---	---	---	---	---	---			
432:														
Lyeflat, gravelly sandy loam surface	0-3	50-75	15-35	12-18	1.37-1.39	14.00-42.00	0.07-0.11	0.0-2.9	0.1-0.5	.17	.28	1	5	56
	3-11	40-75	15-40	12-18	1.37-1.39	14.00-42.00	0.03-0.16	0.0-2.9	0.1-0.5	.17	.32			
	11-21				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
432:														
Lyeflat, very cobbly sandy loam surface	0-3	50-75	15-35	12-18	1.37-1.39	4.00-14.00	0.01-0.07	0.0-2.9	0.1-0.5	.10	.28	1	6	48
	3-11	40-75	15-40	12-18	1.37-1.39	14.00-42.00	0.03-0.16	0.0-2.9	0.1-0.5	.17	.32			
	11-21				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
433:														
Lyeflat	0-3	50-75	15-35	12-18	1.37-1.39	4.00-14.00	0.01-0.07	0.0-2.9	0.1-0.5	.10	.28	1	6	48
	3-11	40-75	15-40	12-18	1.37-1.39	14.00-42.00	0.03-0.16	0.0-2.9	0.1-0.5	.17	.32			
	11-21				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
434:														
McConnel	0-1	55-75	10-35	5-10	1.50-1.90	14.00-42.00	0.04-0.08	1.0-2.9	0.2-1.0	.05	.15	3	5	56
	1-12	40-75	15-40	5-15	1.50-1.90	14.00-42.00	0.11-0.18	1.0-2.9	0.2-0.5	.24	.24			
	12-18	60-90	4-30	5-15	1.80-2.00	14.00-42.00	0.01-0.10	1.0-2.9	0.2-0.4	.10	.17			
	18-60	80-95	2-10	3-10	1.80-2.00	42.00-141.00	0.01-0.05	1.0-2.9	0.2-0.3	.02	.02			
435:														
McConnel, sodic substratum	0-1	55-75	10-35	5-15	1.50-1.90	14.00-42.00	0.07-0.11	1.0-2.9	0.2-1.0	.15	.20	2	5	56
	1-12	40-75	15-40	5-15	1.50-1.90	14.00-42.00	0.11-0.18	1.0-2.9	0.2-0.5	.24	.24			
	12-18	60-90	4-30	5-15	1.80-2.00	14.00-42.00	0.01-0.10	1.0-2.9	0.2-0.4	.10	.17			
	18-60	80-95	2-10	3-10	1.80-2.00	42.00-141.00	0.01-0.05	1.0-2.9	0.2-0.3	.02	.02			
436:														
McConnel	0-1	55-75	10-35	5-10	1.50-1.90	14.00-42.00	0.04-0.08	1.0-2.9	0.2-1.0	.10	.24	5	6	48
	1-12	40-75	15-40	5-15	1.50-1.90	14.00-42.00	0.11-0.18	1.0-2.9	0.2-0.5	.24	.24			
	12-18	60-90	4-30	5-15	1.80-2.00	14.00-42.00	0.01-0.10	1.0-2.9	0.2-0.4	.10	.17			
	18-60	80-95	2-10	3-10	1.80-2.00	42.00-141.00	0.01-0.05	1.0-2.9	0.2-0.3	.02	.02			
437:														
McConnel	0-1	55-75	10-35	5-10	1.50-1.90	14.00-42.00	0.04-0.08	1.0-2.9	0.2-1.0	.10	.24	5	6	48
	1-12	40-75	15-40	5-15	1.50-1.90	14.00-42.00	0.11-0.18	1.0-2.9	0.2-0.5	.24	.24			
	12-18	60-90	4-30	5-15	1.80-2.00	14.00-42.00	0.01-0.10	1.0-2.9	0.2-0.4	.10	.17			
	18-60	80-95	2-10	3-10	1.80-2.00	42.00-141.00	0.01-0.05	1.0-2.9	0.2-0.3	.02	.02			
438:														
McConnel	0-1	55-75	10-35	5-10	1.50-1.90	14.00-42.00	0.02-0.05	1.0-2.9	0.2-1.0	.02	.15	5	8	0
	1-12	40-75	15-40	5-15	1.50-1.90	14.00-42.00	0.11-0.18	1.0-2.9	0.2-0.5	.24	.24			
	12-18	60-90	4-30	5-15	1.80-2.00	14.00-42.00	0.01-0.10	1.0-2.9	0.2-0.4	.10	.17			
	18-60	80-95	2-10	3-10	1.80-2.00	42.00-141.00	0.01-0.05	1.0-2.9	0.2-0.3	.02	.02			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
438:														
Davey----------------	0-3	55-70	12-35	5-18	1.51-1.59	14.00-42.00	0.11-0.15	0.0-2.9	0.1-0.5	.28	.28	3	3	86
	3-23	65-70	19-25	5-16	1.48-1.59	14.00-42.00	0.09-0.15	0.0-2.9	0.1-0.3	.24	.24			
	23-60	80-95	0-10	5-10	1.53-1.65	42.00-141.00	0.04-0.11	0.0-2.9	0.0-0.3	.24	.24			
439:														
McConnel-------------	0-1	75-85	5-20	2-10	1.50-1.90	14.00-42.00	0.04-0.07	1.0-2.9	0.2-1.0	.10	.15	3	2	134
	1-12	40-75	15-40	5-15	1.50-1.90	14.00-42.00	0.11-0.18	1.0-2.9	0.2-0.5	.24	.24			
	12-18	60-90	4-30	5-15	1.80-2.00	14.00-42.00	0.01-0.10	1.0-2.9	0.2-0.4	.10	.17			
	18-60	80-95	2-10	3-10	1.80-2.00	42.00-141.00	0.01-0.05	1.0-2.9	0.2-0.3	.02	.02			
Poorjug, overblown---	0-13	75-88	5-22	5-14	1.29-1.34	42.00-141.00	0.04-0.07	1.0-2.9	0.2-1.0	.15	.20	1	2	134
	13-19	30-50	35-45	18-25	1.25-1.30	4.00-14.00	0.10-0.15	1.0-2.9	0.2-0.7	.20	.43			
	19-29				---	---	---	---	---	---	---			
440:														
McConnel-------------	0-1	55-75	10-35	5-10	1.50-1.90	14.00-42.00	0.04-0.08	1.0-2.9	0.2-1.0	.10	.24	5	6	48
	1-12	40-75	15-40	5-15	1.50-1.90	14.00-42.00	0.11-0.18	1.0-2.9	0.2-0.5	.24	.24			
	12-18	60-90	4-30	5-15	1.80-2.00	14.00-42.00	0.01-0.10	1.0-2.9	0.2-0.4	.10	.17			
	18-60	80-95	2-10	3-10	1.80-2.00	42.00-141.00	0.01-0.05	1.0-2.9	0.2-0.3	.02	.02			
Turpin---------------	0-4	50-80	20-40	4-10	1.52-1.60	14.00-42.00	0.12-0.15	1.0-2.9	0.5-0.8	.32	.32	2	3	86
	4-12	50-80	20-40	4-10	1.55-1.60	14.00-42.00	0.10-0.13	1.0-2.9	0.2-0.8	.24	.37			
	12-62	75-85	10-20	4-10	1.60-1.65	14.00-141.00	0.02-0.10	1.0-2.9	0.2-0.6	.20	.20			
441:														
McNye----------------	0-7	50-80	10-30	7-15	1.25-1.40	14.00-42.00	0.05-0.11	1.0-2.9	1.0-2.0	.15	.32	3	6	48
	7-16	50-80	10-30	4-15	1.30-1.40	14.00-42.00	0.04-0.09	1.0-2.9	0.2-0.8	.10	.32			
	16-42	75-90	10-20	0-5	1.45-1.65	141.00-705.00	0.03-0.05	0.0-2.9	0.0-0.5	.02	.10			
	42-52				---	---	---	---	---	---	---			
Wildhill-------------	0-2	60-70	20-25	10-15	1.27-1.38	14.00-42.00	0.02-0.05	0.0-2.9	0.3-0.5	.05	.24	2	8	0
	2-9	60-70	20-20	12-18	1.27-1.38	14.00-42.00	0.05-0.10	0.0-2.9	0.3-0.5	.10	.28			
	9-14	30-70	10-35	20-35	1.27-1.44	1.40-4.00	0.04-0.14	0.0-5.9	0.1-0.5	.10	.28			
	14-25	35-70	10-35	20-30	1.29-1.30	4.00-14.00	0.04-0.14	0.0-2.9	0.0-0.2	.05	.24			
	25-35				---	---	---	---	---	---	---			
Rock outcrop---------	0-60				---	---	---	---	---	---	---	---	---	---
442:														
Meld-----------------	0-3	35-50	40-45	10-20	0.92-1.24	14.00-42.00	0.21-0.24	0.0-2.9	2.0-3.0	.37	.37	2	4	86
	3-16	25-40	32-42	27-32	0.92-1.24	4.00-14.00	0.24-0.30	3.0-5.9	1.0-3.0	.28	.28			
	16-33	25-40	30-40	30-35	0.97-1.27	1.40-4.00	0.14-0.24	1.0-5.9	0.5-1.0	.10	.37			
	33-40				---	0.01-0.42	0.00-0.00	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
442:														
Giranch	0-11	30-50	30-50	10-25	1.00-1.35	4.00-14.00	0.15-0.20	1.0-2.9	2.0-4.0	.28	.43	2	5	56
	11-23	20-55	15-45	30-40	1.00-1.35	1.40-4.00	0.11-0.21	3.0-5.9	2.0-4.0	.10	.37			
	23-29	10-45	10-40	40-55	1.15-1.50	0.42-1.40	0.07-0.14	6.0-9.0	0.2-0.5	.10	.28			
	29-33	20-45	20-50	27-40	1.40-1.50	1.40-4.00	0.16-0.21	3.0-5.9	0.2-0.5	.49	.49			
	33-60				---	0.01-0.42	0.00-0.00	---	---	---	---			
443:														
Menbo, dry	0-3	30-50	35-45	10-18	0.91-1.24	4.00-14.00	0.12-0.20	0.0-2.9	1.0-3.0	.24	.43	2	5	56
	3-8	30-50	35-45	10-18	0.94-1.24	4.00-14.00	0.15-0.23	0.0-2.9	1.0-2.0	.24	.43			
	8-26	20-40	25-32	35-50	1.13-1.46	0.42-1.40	0.07-0.14	3.0-5.9	0.5-1.5	.10	.32			
	26-36				---	---	---	---	---	---	---			
444:														
Merlin	0-4	30-50	35-45	16-24	1.10-1.27	4.00-42.00	0.04-0.07	0.0-2.9	2.0-4.0	.05	.32	1	8	0
	4-7	25-40	30-35	32-38	1.11-1.24	0.42-4.00	0.14-0.18	3.0-5.9	1.0-3.0	.17	.32			
	7-18	10-35	15-20	50-70	1.03-1.28	0.01-0.42	0.12-0.16	6.0-9.0	0.3-0.7	.20	.20			
	18-28				---	---	---	---	---	---	---			
445:														
Mesman	0-2	55-75	15-35	5-14	1.20-1.40	14.00-42.00	0.12-0.14	0.0-2.9	1.0-2.0	.37	.37	3	3	86
	2-7	60-85	10-35	8-14	1.20-1.40	14.00-42.00	0.08-0.12	0.0-2.9	1.0-1.5	.20	.20			
	7-26	30-65	18-40	16-30	1.10-1.30	1.40-14.00	0.03-0.14	3.0-5.9	0.2-0.6	.28	.28			
	26-72	55-85	10-35	10-20	1.20-1.40	0.42-1.40	0.03-0.04	1.0-2.9	0.2-0.5	.32	.32			
446:														
Mesman, slightly alkaline	0-2	55-75	15-35	5-14	1.20-1.40	14.00-42.00	0.12-0.14	0.0-2.9	1.0-2.0	.37	.37	3	3	86
	2-7	60-85	10-35	8-14	1.20-1.40	14.00-42.00	0.08-0.12	0.0-2.9	1.0-1.5	.20	.20			
	7-26	30-65	18-40	16-30	1.10-1.30	1.40-14.00	0.03-0.14	3.0-5.9	0.2-0.6	.28	.28			
	26-72	55-85	10-35	10-20	1.20-1.40	0.42-1.40	0.03-0.04	1.0-2.9	0.2-0.5	.32	.32			
447:														
Mesman	0-2	60-85	10-35	8-14	1.20-1.40	14.00-42.00	0.08-0.12	0.0-2.9	1.0-2.0	.15	.24	3	5	56
	2-7	60-85	10-35	8-14	1.20-1.40	14.00-42.00	0.08-0.12	0.0-2.9	1.0-1.5	.20	.20			
	7-26	30-65	18-40	16-30	1.10-1.30	1.40-14.00	0.03-0.14	3.0-5.9	0.2-0.6	.28	.28			
	26-72	55-85	10-35	10-20	1.20-1.40	0.42-1.40	0.03-0.04	1.0-2.9	0.2-0.5	.32	.32			
McConnel	0-1	55-75	10-35	5-10	1.50-1.90	14.00-42.00	0.04-0.08	1.0-2.9	0.2-1.0	.10	.24	5	6	48
	1-12	40-75	15-40	5-15	1.50-1.90	14.00-42.00	0.11-0.18	1.0-2.9	0.2-0.5	.24	.24			
	12-18	60-90	4-30	5-15	1.80-2.00	14.00-42.00	0.01-0.10	1.0-2.9	0.2-0.4	.10	.17			
	18-60	80-95	2-10	3-10	1.80-2.00	42.00-141.00	0.01-0.05	1.0-2.9	0.2-0.3	.02	.02			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
447:														
Kewake	0-4	75-88	4-20	2-10	0.98-1.35	14.00-42.00	0.06-0.08	0.0-2.9	0.1-0.5	.20	.20	5	1	220
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
448:														
Milcan	0-2	80-86	8-13	5-9	0.94-1.24	14.00-42.00	0.09-0.12	0.0-2.9	1.0-2.0	.10	.10	2	1	220
	2-10	60-80	13-18	5-15	0.94-1.24	14.00-42.00	0.06-0.20	0.0-2.9	1.0-2.0	.10	.10			
	10-34	60-85	10-25	5-15	0.97-1.32	14.00-42.00	0.11-0.23	0.0-2.9	0.5-1.0	.20	.20			
	34-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
449:														
Milcan	0-2	35-50	30-45	10-15	0.94-1.24	4.00-14.00	0.21-0.27	0.0-2.9	1.0-2.0	.28	.28	2	4	86
	2-10	60-80	13-18	5-15	0.94-1.24	14.00-42.00	0.06-0.20	0.0-2.9	1.0-2.0	.10	.10			
	10-34	60-85	10-25	5-15	0.97-1.32	14.00-42.00	0.11-0.23	0.0-2.9	0.5-1.0	.20	.20			
	34-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
Jacksplace	0-4	55-75	15-45	8-15	0.93-1.29	14.00-42.00	0.11-0.14	0.0-2.9	1.0-2.0	.17	.32	2	4	86
	4-9	60-75	15-30	8-12	0.93-1.29	14.00-42.00	0.11-0.17	0.0-2.9	1.0-2.0	.15	.24			
	9-12	55-70	15-25	16-19	0.97-1.32	4.00-14.00	0.06-0.12	0.0-2.9	0.5-1.0	.10	.32			
	12-20	50-65	15-20	18-28	0.97-1.34	4.00-14.00	0.06-0.15	3.0-5.9	0.1-0.5	.10	.55			
	20-26	55-70	15-25	16-19	0.99-1.35	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.3	.05	.28			
	26-30				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
450:														
Millenium	0-3	20-40	55-70	5-15	0.91-1.24	1.40-4.00	0.24-0.31	0.0-2.9	1.0-3.0	.43	.43	5	4	86
	3-9	70-77	5-20	8-15	0.91-1.24	1.40-4.00	0.20-0.23	0.0-2.9	1.0-3.0	.28	.28			
	9-22	30-65	10-35	25-35	0.97-1.32	1.40-4.00	0.21-0.32	3.0-5.9	0.5-1.0	.20	.20			
	22-30	55-75	10-25	15-20	0.98-1.33	1.40-4.00	0.17-0.20	1.0-2.9	0.3-0.8	.24	.24			
	30-47	15-85	20-45	10-30	1.00-1.35	1.40-42.00	0.24-0.27	3.0-5.9	0.1-0.4	.43	.43			
	47-65	60-87	5-20	5-15	1.00-1.35	14.00-42.00	0.09-0.20	1.0-2.9	0.1-0.4	.28	.28			
451:														
Millenium, basin floor	0-3	20-40	55-70	5-15	0.91-1.24	1.40-4.00	0.24-0.31	0.0-2.9	1.0-3.0	.43	.43	5	4	86
	3-9	70-77	5-20	8-15	0.91-1.24	1.40-4.00	0.20-0.23	0.0-2.9	1.0-3.0	.28	.28			
	9-22	30-65	10-35	25-35	0.97-1.32	1.40-4.00	0.21-0.32	3.0-5.9	0.5-1.0	.20	.20			
	22-30	55-75	10-25	15-20	0.98-1.33	1.40-4.00	0.17-0.20	1.0-2.9	0.3-0.8	.24	.24			
	30-47	15-85	20-45	10-30	1.00-1.35	1.40-42.00	0.24-0.27	3.0-5.9	0.1-0.4	.43	.43			
	47-65	60-87	5-20	5-15	1.00-1.35	14.00-42.00	0.09-0.20	1.0-2.9	0.1-0.4	.28	.28			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
452:														
Millenium	0-3	75-80	5-20	5-10	0.91-1.24	1.40-4.00	0.20-0.23	0.0-2.9	1.0-3.0	.24	.24	5	2	134
	3-9	70-77	5-20	8-15	0.91-1.24	1.40-4.00	0.20-0.23	0.0-2.9	1.0-3.0	.28	.28			
	9-22	30-65	10-35	25-35	0.97-1.32	1.40-4.00	0.21-0.32	3.0-5.9	0.5-1.0	.20	.20			
	22-30	55-75	10-25	15-20	0.98-1.33	1.40-4.00	0.17-0.20	1.0-2.9	0.3-0.8	.24	.24			
	30-47	15-85	20-45	10-30	1.00-1.35	1.40-42.00	0.24-0.27	3.0-5.9	0.1-0.4	.43	.43			
	47-65	60-87	5-20	5-15	1.00-1.35	14.00-42.00	0.09-0.20	1.0-2.9	0.1-0.4	.28	.28			
Stauffer	0-8	55-70	15-35	5-14	0.90-1.30	14.00-42.00	0.20-0.23	1.0-2.9	1.0-3.0	.32	.32	5	2	134
	8-26	40-70	10-30	20-35	0.90-1.35	4.00-42.00	0.21-0.24	1.0-5.9	0.6-3.0	.24	.24			
	26-45	40-70	10-40	12-30	1.00-1.35	4.00-42.00	0.17-0.20	1.0-5.9	0.2-0.6	.24	.24			
	45-66	30-70	10-60	8-30	1.00-1.35	4.00-42.00	0.17-0.20	1.0-5.9	0.2-0.4	.37	.37			
Raztack	0-4	55-75	15-35	5-15	1.00-1.35	14.00-42.00	0.22-0.25	1.0-2.9	0.5-0.8	.55	.55	4	2	134
	4-14	25-45	30-45	20-35	1.00-1.35	4.00-14.00	0.24-0.27	3.0-5.9	0.5-0.8	.32	.32			
	14-33	20-40	20-35	42-58	1.10-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.2-0.6	.24	.24			
	33-44	35-60	25-45	20-40	1.25-1.35	4.00-14.00	0.19-0.21	3.0-5.9	0.2-0.4	.32	.32			
	44-50	30-85	10-36	6-15	1.80-2.00	0.42-1.40	0.02-0.04	1.0-2.9	0.2-0.2	.32	.32			
	50-70	30-85	10-35	6-35	1.25-1.75	4.00-42.00	0.05-0.21	1.0-5.9	0.2-0.4	.32	.32			
455:														
Moonbeam	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.12-0.19	0.0-2.9	1.0-3.0	.20	.43	1	4	86
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
456:														
Moonbeam	0-3	35-50	38-45	12-20	0.92-1.24	1.40-4.00	0.15-0.22	0.0-2.9	1.0-3.0	.28	.43	1	5	56
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
457:														
Moonbeam	0-3	35-50	38-45	12-20	0.92-1.24	1.40-4.00	0.06-0.08	0.0-2.9	1.0-3.0	.05	.43	1	7	38
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
458:														
Moonbeam	0-3	35-50	38-45	12-20	0.92-1.24	1.40-4.00	0.12-0.18	0.0-2.9	1.0-3.0	.15	.43	1	6	48
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
459:														
Moonbeam	0-3	35-50	38-45	12-20	0.92-1.24	4.00-14.00	0.06-0.15	0.0-2.9	1.0-3.0	.17	.43	1	6	48
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
460:														
Moonbeam	0-3	35-50	38-45	12-20	0.92-1.24	4.00-14.00	0.06-0.15	0.0-2.9	1.0-3.0	.17	.43	1	6	48
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
461:														
Moonbeam	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.10-0.17	0.0-2.9	1.0-3.0	.20	.37	1	4	86
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Connleyhills	0-4	55-70	25-30	5-15	1.18-1.34	14.00-42.00	0.12-0.14	0.0-2.9	1.0-3.0	.17	.28	2	4	86
	4-11	55-75	17-27	8-18	1.30-1.40	14.00-42.00	0.18-0.25	0.0-2.9	1.0-2.0	.28	.28			
	11-15	25-40	33-35	27-40	1.19-1.34	1.40-4.00	0.24-0.35	3.0-5.9	0.5-1.5	.10	.32			
	15-22	5-40	20-35	40-60	1.38-1.51	0.42-1.40	0.06-0.10	6.0-8.9	0.5-1.0	.10	.28			
	22-29	15-40	20-35	40-50	1.34-1.51	0.42-1.40	0.11-0.16	6.0-8.9	0.5-1.0	.24	.24			
	29-32	25-40	29-35	27-40	1.23-1.36	1.40-4.00	0.24-0.34	3.0-5.9	0.1-0.5	.10	.32			
	32-42				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
462:														
Moonbeam-------------	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.22-0.25	0.0-2.9	1.0-3.0	.55	.55	1	2	134
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Goodtack-------------	0-3	60-75	15-30	2-18	1.00-1.35	42.00-141.00	0.07-0.09	1.0-2.9	1.0-3.0	.28	.49	1	4	86
	3-7	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55			
	7-19	50-70	20-30	18-26	1.00-1.35	4.00-42.00	0.18-0.23	1.0-2.9	0.2-1.0	.37	.37			
	19-46				---	0.01-0.42	0.00-0.00	---	---	---	---			
	46-56				---	---	---	---	---	---	---			
463:														
Moonbeam-------------	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.12-0.19	0.0-2.9	1.0-3.0	.20	.43	1	4	86
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Goodtack-------------	0-3	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.10-0.17	1.0-2.9	1.0-3.0	.20	.37	1	4	86
	3-7	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55			
	7-19	50-70	20-30	18-26	1.00-1.35	4.00-42.00	0.18-0.23	1.0-2.9	0.2-1.0	.37	.37			
	19-46				---	0.01-0.42	0.00-0.00	---	---	---	---			
	46-56				---	---	---	---	---	---	---			
464:														
Moonbeam-------------	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.12-0.18	0.0-2.9	1.0-3.0	.24	.43	1	4	86
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Hayespring-----------	0-3	55-75	15-30	12-16	0.88-1.23	14.00-42.00	0.05-0.12	0.0-2.9	2.0-4.0	.10	.24	2	5	56
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
465:														
Moonbeam, moist------	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.14-0.21	0.0-2.9	1.0-3.0	.28	.55	1	4	86
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Hayespring, moist----	0-3	55-75	15-30	10-16	0.88-1.23	14.00-42.00	0.15-0.20	0.0-2.9	2.0-4.0	.10	.24	2	4	86
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			
466:														
Moonbeam-------------	0-3	35-50	38-45	12-20	0.92-1.24	1.40-4.00	0.15-0.22	0.0-2.9	1.0-3.0	.24	.43	1	5	56
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Meld-----------------	0-3	55-75	15-35	5-15	0.92-1.24	14.00-42.00	0.15-0.21	0.0-2.9	1.0-3.0	.28	.49	2	4	86
	3-16	25-40	32-42	27-32	0.92-1.24	4.00-14.00	0.24-0.30	3.0-5.9	1.0-3.0	.28	.28			
	16-33	25-40	30-40	30-35	0.97-1.27	1.40-4.00	0.14-0.24	1.0-5.9	0.5-1.0	.10	.37			
	33-40				---	0.01-0.42	0.00-0.00	---	---	---	---			
467:														
Moonbeam-------------	0-3	35-50	38-45	12-20	0.92-1.24	4.00-14.00	0.06-0.15	0.0-2.9	1.0-3.0	.17	.43	1	6	48
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Senra----------------	0-3	35-50	30-45	15-25	0.91-1.29	14.00-42.00	0.15-0.22	0.0-2.9	1.0-3.0	.24	.43	1	6	48
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
468:														
Moonbeam, gravelly ashy fine sandy loam surface	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.12-0.20	0.0-2.9	1.0-3.0	.20	.43	1	4	86
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Senra	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.17-0.21	0.0-2.9	1.0-3.0	.37	.37	1	2	134
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
469:														
Moonbeam	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.19-0.22	0.0-2.9	1.0-3.0	.43	.43	1	2	134
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Senra	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.15-0.21	0.0-2.9	1.0-3.0	.24	.37	1	4	86
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
Hayespring	0-3	55-75	15-30	10-16	0.88-1.23	14.00-42.00	0.16-0.22	0.0-2.9	2.0-4.0	.17	.37	2	4	86
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			
470:														
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
471:														
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
472:														
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
473:														
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-60	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.17	.17			
474:														
Morehouse, ashy fine sand surface	0-5	88-98	4-10	3-8	0.97-1.27	42.00-141.00	0.05-0.08	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
Morehouse, ashy sand surface	0-5	88-98	4-10	3-8	0.97-1.27	42.00-141.00	0.05-0.08	0.0-2.9	0.5-1.0	.10	.10	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
475:														
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
Playas	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	5	4	86
	6-60			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
476:														
Morfitt	0-3	30-50	30-45	18-26	1.27-1.29	1.40-4.00	0.15-0.18	1.0-5.9	0.3-0.5	.32	.32	5	6	48
	3-7	30-45	35-45	20-27	1.27-1.29	1.40-4.00	0.15-0.18	1.0-5.9	0.3-0.5	.37	.37			
	7-25	15-45	30-55	25-35	1.28-1.49	1.40-4.00	0.15-0.21	3.0-5.9	0.1-0.3	.32	.32			
	25-60	25-45	30-40	25-35	1.28-1.49	1.40-4.00	0.15-0.21	3.0-5.9	0.1-0.3	.32	.32			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
477:														
Murlose	0-11	35-50	30-45	10-25	0.91-1.29	4.00-14.00	0.15-0.22	0.0-5.9	1.0-3.0	.20	.37	1	6	48
	11-19	30-70	10-35	20-35	0.94-1.32	1.40-4.00	0.11-0.20	1.0-5.9	0.5-2.0	.20	.32			
	19-22				---	0.01-0.42	0.00-0.00	---	---	---	---			
	22-32				---	---	---	---	---	---	---			
478:														
Murlose	0-3	60-70	20-25	8-15	0.91-1.29	14.00-42.00	0.08-0.14	0.0-2.9	1.0-3.0	.20	.28	1	4	86
	3-11	60-70	20-21	10-18	0.91-1.29	14.00-42.00	0.11-0.17	0.0-2.9	1.0-3.0	.15	.32			
	11-19	30-70	10-35	20-35	0.94-1.32	1.40-4.00	0.11-0.20	1.0-5.9	0.5-2.0	.20	.32			
	19-22				---	0.01-0.42	0.00-0.00	---	---	---	---			
	22-32				---	---	---	---	---	---	---			
479:														
Ninemile	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.05-0.12	1.0-2.9	1.0-3.0	.15	.43	1	7	38
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
480:														
Ninemile, low precipitation	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.05-0.12	1.0-2.9	1.0-3.0	.15	.43	1	7	38
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
481:														
Ninemile	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.05-0.12	1.0-2.9	1.0-3.0	.15	.43	1	7	38
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
Arcia	0-4	30-50	30-45	16-24	1.06-1.33	14.00-42.00	0.10-0.15	3.0-5.9	1.0-3.0	.24	.37	2	7	38
	4-12	30-50	30-45	18-26	1.07-1.24	14.00-42.00	0.14-0.18	3.0-5.9	1.0-2.0	.32	.32			
	12-32	15-40	25-35	35-50	1.14-1.46	0.42-1.40	0.13-0.15	6.0-9.0	0.5-1.3	.24	.24			
	32-42				---	---	---	---	---	---	---			
482:														
Ninemile	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.10-0.16	1.0-2.9	1.0-3.0	.24	.43	1	6	48
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
Carvix	0-6	5-30	55-68	15-27	1.14-1.40	4.00-14.00	0.16-0.21	0.0-5.9	1.0-2.0	.49	.49	5	5	56
	6-19	5-50	35-68	15-27	1.21-1.41	4.00-14.00	0.13-0.21	0.0-5.9	1.0-2.0	.43	.43			
	19-60	25-50	32-45	18-30	1.26-1.48	4.00-14.00	0.13-0.21	0.0-5.9	0.5-1.0	.32	.32			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
483:														
Ninemile	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.10-0.16	1.0-2.9	1.0-3.0	.24	.43	1	6	48
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
Edemaps	0-3	25-45	20-45	27-35	1.30-1.50	1.40-4.00	0.13-0.16	3.0-5.9	1.0-3.0	.15	.24	2	7	38
	3-10	40-65	20-30	16-30	1.05-1.20	1.40-42.00	0.07-0.13	1.0-5.9	1.0-3.0	.20	.20			
	10-19	25-35	30-40	35-40	1.20-1.25	1.40-4.00	0.13-0.19	6.0-8.9	0.5-1.0	.20	.32			
	19-24	25-35	30-40	35-40	1.20-1.25	1.40-4.00	0.13-0.19	6.0-8.9	0.5-1.0	.17	.32			
	24-26				---	0.01-0.42	0.00-0.00	---	---	---	---			
	26-30				---	---	---	---	---	---	---			
484:														
Ninemile	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.05-0.12	1.0-2.9	1.0-3.0	.15	.43	1	7	38
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
Reluctan	0-2	40-50	30-40	15-25	1.30-1.40	4.00-14.00	0.12-0.15	0.0-2.9	1.0-2.0	.20	.32	2	7	38
	2-9	40-65	20-40	15-25	1.40-1.50	4.00-14.00	0.12-0.15	0.0-2.9	1.0-2.0	.20	.20			
	9-26	25-60	15-40	25-35	1.40-1.50	1.40-4.00	0.14-0.17	3.0-5.9	0.5-2.0	.24	.24			
	26-36				---	---	---	---	---	---	---			
485:														
Ninemile	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.05-0.12	1.0-2.9	1.0-3.0	.15	.43	1	7	38
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
Reluctan	0-2	55-75	15-35	5-15	1.30-1.40	14.00-42.00	0.12-0.15	0.0-2.9	1.0-2.0	.32	.32	2	3	86
	2-9	40-65	20-40	15-25	1.40-1.50	4.00-14.00	0.12-0.15	0.0-2.9	1.0-2.0	.20	.20			
	9-26	25-60	15-40	25-35	1.40-1.50	1.40-4.00	0.14-0.17	3.0-5.9	0.5-2.0	.24	.24			
	26-36				---	---	---	---	---	---	---			
Rubble land	0-60				---	---	---	---	---	---	---	---	---	---
486:														
Ninemile, north	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.05-0.12	1.0-2.9	1.0-3.0	.15	.43	1	7	38
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Felcher, south	0-4	55-75	10-40	5-18	1.32-1.50	14.00-42.00	0.08-0.12	0.0-2.9	0.3-0.5	.15	.32	2	6	48
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
487:														
Ninemile	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.05-0.12	1.0-2.9	1.0-3.0	.15	.43	1	7	38
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
Westbutte	0-3	30-50	30-45	15-22	1.12-1.25	4.00-14.00	0.04-0.07	3.0-5.9	1.0-3.0	.05	.32	2	8	0
	3-11	30-50	25-45	18-30	1.20-1.25	1.40-14.00	0.05-0.13	3.0-5.9	1.0-3.0	.10	.37			
	11-21	30-50	25-45	18-30	1.20-1.30	1.40-14.00	0.05-0.15	3.0-5.9	0.6-2.0	.10	.37			
	21-31				---	---	---	---	---	---	---			
488:														
Ninemile	0-2	25-40	25-45	30-38	1.26-1.41	1.40-4.00	0.07-0.14	3.0-5.9	1.0-3.0	.15	.37	1	8	0
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
Westbutte	0-3	30-50	30-45	15-22	1.12-1.25	4.00-14.00	0.04-0.07	3.0-5.9	1.0-3.0	.05	.32	2	8	0
	3-11	30-50	25-45	18-30	1.20-1.25	1.40-14.00	0.05-0.13	3.0-5.9	1.0-3.0	.10	.37			
	11-21	30-50	25-45	18-30	1.20-1.30	1.40-14.00	0.05-0.15	3.0-5.9	0.6-2.0	.10	.37			
	21-31				---	---	---	---	---	---	---			
Ninemile, extremely stony surface	0-2	15-40	55-75	10-25	1.26-1.41	4.00-14.00	0.04-0.08	1.0-2.9	1.0-3.0	.10	.55	1	8	0
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
489:														
Noidee	0-2	50-70	20-40	8-16	1.34-1.40	14.00-42.00	0.05-0.10	0.0-2.9	0.4-0.8	.15	.37	1	6	48
	2-5	20-50	10-35	35-45	1.20-1.40	0.42-1.40	0.10-0.14	6.0-9.0	0.2-0.6	.28	.28			
	5-16	20-60	10-40	25-45	1.20-1.40	0.42-4.00	0.04-0.12	3.0-9.0	0.2-0.4	.32	.32			
	16-26				---	---	---	---	---	---	---			
490:														
Norcross, extremely cobbly ashy loam surface	0-3	35-50	35-45	10-25	1.00-1.35	4.00-14.00	0.15-0.22	1.0-5.9	2.0-4.0	.05	.37	1	7	38
	3-6	25-50	30-45	22-30	1.00-1.35	4.00-42.00	0.08-0.23	3.0-5.9	1.0-3.0	.20	.37			
	6-19	20-40	10-40	38-60	1.20-1.45	0.42-4.00	0.18-0.24	6.0-9.0	0.2-1.0	.20	.20			
	19-21				---	0.01-0.42	0.00-0.00	---	---	---	---			
	21-31				---	---	---	---	---	---	---			
Norcross, cobbly ashy fine sandy loam surface	0-3	55-75	15-35	10-15	1.00-1.35	4.00-14.00	0.12-0.20	1.0-2.9	2.0-4.0	.20	.37	1	4	86
	3-6	25-50	30-45	22-30	1.00-1.35	4.00-42.00	0.08-0.23	3.0-5.9	1.0-3.0	.20	.37			
	6-19	20-40	10-40	38-60	1.20-1.45	0.42-4.00	0.18-0.24	6.0-9.0	0.2-1.0	.20	.20			
	19-21				---	0.01-0.42	0.00-0.00	---	---	---	---			
	21-31				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
491:														
Norcross	0-3	35-50	35-45	10-25	1.00-1.35	4.00-14.00	0.15-0.22	1.0-5.9	2.0-4.0	.05	.37	1	7	38
	3-6	25-50	30-45	22-30	1.00-1.35	4.00-42.00	0.08-0.23	3.0-5.9	1.0-3.0	.20	.37			
	6-19	20-40	10-40	38-60	1.20-1.45	0.42-4.00	0.18-0.24	6.0-9.0	0.2-1.0	.20	.20			
	19-21				---	0.01-0.42	0.00-0.00	---	---	---	---			
	21-31				---	---	---	---	---	---	---			
492:														
Norcross	0-3	35-50	35-45	10-25	1.00-1.35	4.00-14.00	0.15-0.22	1.0-5.9	2.0-4.0	.24	.37	1	6	48
	3-6	25-50	30-45	22-30	1.00-1.35	4.00-42.00	0.08-0.23	3.0-5.9	1.0-3.0	.20	.37			
	6-19	20-40	10-40	38-60	1.20-1.45	0.42-4.00	0.18-0.24	6.0-9.0	0.2-1.0	.20	.20			
	19-21				---	0.01-0.42	0.00-0.00	---	---	---	---			
	21-31				---	---	---	---	---	---	---			
493:														
Oatmanflat	0-3	55-75	10-35	10-20	1.00-1.35	14.00-42.00	0.22-0.25	1.0-2.9	1.0-3.0	.37	.37	3	2	134
	3-12	50-75	10-30	10-25	1.00-1.35	4.00-42.00	0.13-0.18	1.0-2.9	0.5-1.5	.24	.24			
	12-28	55-75	10-35	8-20	1.00-1.35	14.00-42.00	0.22-0.25	1.0-2.9	0.2-0.5	.28	.28			
	28-44	40-65	15-40	18-35	1.00-1.35	4.00-42.00	0.14-0.23	1.0-5.9	0.2-0.5	.28	.28			
	44-53	40-65	15-40	18-35	1.00-1.35	4.00-42.00	0.14-0.23	1.0-5.9	0.2-0.5	.24	.37			
	53-64				---	0.01-0.42	0.00-0.00	---	---	---	---			
494:														
Oatmanflat	0-3	55-75	10-35	10-20	1.00-1.35	14.00-42.00	0.22-0.25	1.0-2.9	1.0-3.0	.37	.37	3	2	134
	3-12	50-75	10-30	10-25	1.00-1.35	4.00-42.00	0.13-0.18	1.0-2.9	0.5-1.5	.24	.24			
	12-28	55-75	10-35	8-20	1.00-1.35	14.00-42.00	0.22-0.25	1.0-2.9	0.2-0.5	.28	.28			
	28-44	40-65	15-40	18-35	1.00-1.35	4.00-42.00	0.14-0.23	1.0-5.9	0.2-0.5	.28	.28			
	44-53	40-65	15-40	18-35	1.00-1.35	4.00-42.00	0.14-0.23	1.0-5.9	0.2-0.5	.24	.37			
	53-64				---	0.01-0.42	0.00-0.00	---	---	---	---			
Borobey	0-4	50-70	9-30	2-15	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.49	.49	5	2	134
	4-12	75-85	6-20	2-20	1.00-1.35	42.00-141.00	0.08-0.27	0.0-2.9	1.0-3.0	.28	.28			
	12-50	57-87	9-15	4-18	1.00-1.35	1.40-42.00	0.10-0.23	0.0-2.9	0.1-1.0	.37	.37			
	50-68	60-85	12-25	3-18	1.00-1.35	14.00-141.00	0.05-0.23	0.0-2.9	0.1-1.0	.15	.15			
495:														
Old Camp	0-5	30-50	30-45	10-25	1.35-1.45	4.00-14.00	0.07-0.18	1.0-2.9	0.5-1.0	.10	.43	1	8	0
	5-11	35-75	3-40	22-35	1.25-1.35	1.40-14.00	0.05-0.10	3.0-5.9	0.2-0.5	.05	.24			
	11-15	35-75	3-40	22-35	1.25-1.35	1.40-14.00	0.05-0.10	1.0-5.9	0.2-0.5	.05	.24			
	15-25				---	---	---	---	---	---	---			
496:														
Old Camp, south	0-5	30-50	30-45	10-25	1.35-1.45	4.00-14.00	0.07-0.18	1.0-2.9	0.5-1.0	.10	.43	1	8	0
	5-11	35-75	3-40	22-35	1.25-1.35	1.40-14.00	0.05-0.10	3.0-5.9	0.2-0.5	.05	.24			
	11-15	35-75	3-40	22-35	1.25-1.35	1.40-14.00	0.05-0.10	1.0-5.9	0.2-0.5	.05	.24			
	15-25				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
497:														
Old Camp	0-5	30-50	30-45	10-25	1.35-1.45	4.00-14.00	0.07-0.18	1.0-2.9	0.5-1.0	.10	.43	1	8	0
	5-11	35-75	3-40	22-35	1.25-1.35	1.40-14.00	0.05-0.10	3.0-5.9	0.2-0.5	.05	.24			
	11-15	35-75	3-40	22-35	1.25-1.35	1.40-14.00	0.05-0.10	1.0-5.9	0.2-0.5	.05	.24			
	15-25				---	---	---	---	---	---	---			
Felcher, north	0-4	55-75	10-40	5-18	1.32-1.50	14.00-42.00	0.08-0.12	0.0-2.9	0.3-0.5	.15	.32	2	6	48
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
498:														
Osoll	0-4	55-75	15-35	10-18	1.35-1.45	14.00-42.00	0.05-0.10	1.0-2.9	0.5-0.9	.10	.37	1	6	48
	4-8	55-75	15-35	10-18	1.35-1.45	14.00-42.00	0.03-0.07	1.0-2.9	0.2-0.5	.10	.28			
	8-12	55-75	15-35	10-18	1.35-1.45	14.00-42.00	0.03-0.07	1.0-2.9	0.2-0.5	.10	.28			
	12-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
Panlee	0-8	55-75	10-35	8-16	1.20-1.30	14.00-42.00	0.13-0.16	1.0-2.9	0.5-1.0	.32	.49	3	5	56
	8-22	55-75	10-35	8-16	1.30-1.40	14.00-42.00	0.06-0.12	1.0-2.9	0.2-0.5	.15	.32			
	22-54	55-75	10-35	8-16	1.30-1.40	14.00-42.00	0.06-0.12	1.0-2.9	0.2-0.5	.10	.32			
	54-61				---	0.01-0.42	0.00-0.00	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
499:														
Overallflat	0-4	55-75	15-25	12-18	0.98-1.33	14.00-42.00	0.23-0.26	1.0-2.9	0.3-0.5	.49	.49	3	2	134
	4-7	10-25	55-65	20-25	0.99-1.34	1.40-4.00	0.29-0.32	1.0-5.9	0.1-0.3	.55	.55			
	7-14	10-40	30-52	30-45	0.99-1.35	0.42-1.40	0.21-0.32	3.0-8.9	0.0-0.2	.37	.37			
	14-26	50-70	5-15	20-34	0.99-1.35	1.40-4.00	0.20-0.24	3.0-5.9	0.0-0.2	.15	.24			
	26-60	70-90	10-20	5-10	0.99-1.35	14.00-141.00	0.02-0.23	0.0-2.9	0.0-0.2	.32	.32			
500:														
Overallflat, pluvial lake	0-4	55-75	15-25	12-18	0.98-1.33	14.00-42.00	0.23-0.26	1.0-2.9	0.3-0.5	.49	.49	3	2	134
	4-7	10-25	55-65	20-25	0.99-1.34	1.40-4.00	0.29-0.32	1.0-5.9	0.1-0.3	.55	.55			
	7-14	10-40	30-52	30-45	0.99-1.35	0.42-1.40	0.21-0.32	3.0-8.9	0.0-0.2	.37	.37			
	14-26	50-70	5-15	20-34	0.99-1.35	1.40-4.00	0.20-0.24	3.0-5.9	0.0-0.2	.15	.24			
	26-60	70-90	10-20	5-10	0.99-1.35	14.00-141.00	0.02-0.23	0.0-2.9	0.0-0.2	.32	.32			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
501:														
Overallflat----------	0-4	55-75	15-25	12-18	0.98-1.33	14.00-42.00	0.23-0.26	1.0-2.9	0.3-0.5	.49	.49	3	2	134
	4-7	10-25	55-65	20-25	0.99-1.34	1.40-4.00	0.29-0.32	1.0-5.9	0.1-0.3	.55	.55			
	7-14	10-40	30-52	30-45	0.99-1.35	0.42-1.40	0.21-0.32	3.0-8.9	0.0-0.2	.37	.37			
	14-26	50-70	5-15	20-34	0.99-1.35	1.40-4.00	0.20-0.24	3.0-5.9	0.0-0.2	.15	.24			
	26-60	70-90	10-20	5-10	0.99-1.35	14.00-141.00	0.02-0.23	0.0-2.9	0.0-0.2	.32	.32			
Morehouse------------	0-5	55-77	15-40	5-15	0.97-1.27	14.00-42.00	0.15-0.20	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
502:														
Overallflat----------	0-4	55-75	15-25	12-18	0.98-1.33	14.00-42.00	0.19-0.22	1.0-2.9	0.3-0.5	.32	.32	3	2	134
	4-7	10-25	55-65	20-25	0.99-1.34	1.40-4.00	0.29-0.32	1.0-5.9	0.1-0.3	.55	.55			
	7-14	10-40	30-52	30-45	0.99-1.35	0.42-1.40	0.21-0.32	3.0-8.9	0.0-0.2	.37	.37			
	14-26	50-70	5-15	20-34	0.99-1.35	1.40-4.00	0.20-0.24	3.0-5.9	0.0-0.2	.15	.24			
	26-60	70-90	10-20	5-10	0.99-1.35	14.00-141.00	0.02-0.23	0.0-2.9	0.0-0.2	.32	.32			
Silverash------------	0-2	30-50	30-48	10-25	0.95-1.35	4.00-14.00	0.24-0.27	1.0-2.9	0.5-1.0	.43	.43	5	5	56
	2-8	30-50	30-60	10-18	1.00-1.35	14.00-42.00	0.24-0.27	1.0-2.9	0.2-0.8	.43	.43			
	8-21	20-70	20-40	35-50	1.25-1.50	0.42-1.40	0.14-0.16	6.0-9.0	0.2-0.6	.24	.24			
	21-62	30-70	10-30	18-35	1.30-1.60	1.40-42.00	0.14-0.16	1.0-5.9	0.2-0.6	.20	.20			
503:														
Overallflat, hummocky	0-4	55-75	15-25	12-18	0.98-1.33	14.00-42.00	0.23-0.26	1.0-2.9	0.3-0.5	.49	.49	3	2	134
	4-7	10-25	55-65	20-25	0.99-1.34	1.40-4.00	0.29-0.32	1.0-5.9	0.1-0.3	.55	.55			
	7-14	10-40	30-52	30-45	0.99-1.35	0.42-1.40	0.21-0.32	3.0-8.9	0.0-0.2	.37	.37			
	14-26	50-70	5-15	20-34	0.99-1.35	1.40-4.00	0.20-0.24	3.0-5.9	0.0-0.2	.15	.24			
	26-60	70-90	10-20	5-10	0.99-1.35	14.00-141.00	0.02-0.23	0.0-2.9	0.0-0.2	.32	.32			
Silverash------------	0-2	10-30	55-70	10-25	0.95-1.35	4.00-14.00	0.20-0.23	1.0-2.9	0.5-1.0	.55	.55	5	5	56
	2-8	30-50	30-60	10-18	1.00-1.35	14.00-42.00	0.24-0.27	1.0-2.9	0.2-0.8	.43	.43			
	8-21	20-70	20-40	35-50	1.25-1.50	0.42-1.40	0.14-0.16	6.0-9.0	0.2-0.6	.24	.24			
	21-62	30-70	10-30	18-35	1.30-1.60	1.40-42.00	0.14-0.16	1.0-5.9	0.2-0.6	.20	.20			
504:														
Ozamis, saline-------	0-10	5-15	45-55	40-50	1.05-1.33	1.40-4.00	0.04-0.15	3.0-5.9	2.0-4.0	.20	.20	5	4	86
	10-34	5-45	30-55	25-45	1.09-1.25	1.40-4.00	0.19-0.21	3.0-5.9	1.0-3.0	.43	.43			
	34-36	90-98	2-8	2-6	1.20-1.40	42.00-141.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	36-60	10-65	20-55	10-32	1.00-1.35	1.40-42.00	0.11-0.21	1.0-5.9	0.5-1.0	.43	.43			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
505:														
Ozamis----------------	0-10	30-50	30-45	10-25	1.05-1.33	4.00-14.00	0.16-0.18	1.0-2.9	2.0-4.0	.24	.24	5	8	0
	10-34	5-45	30-55	25-45	1.09-1.25	1.40-4.00	0.19-0.21	3.0-5.9	1.0-3.0	.43	.43			
	34-36	90-98	2-8	2-6	1.20-1.40	42.00-141.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	36-60	10-65	20-55	10-32	1.00-1.35	1.40-42.00	0.11-0.21	1.0-5.9	0.5-1.0	.43	.43			
Reese-----------------	0-4	55-75	15-35	5-15	1.20-1.40	4.00-14.00	0.01-0.03	0.0-2.9	1.0-3.0	.49	.49	2	3	86
	4-10	30-50	30-48	10-25	1.30-1.45	1.40-4.00	0.01-0.03	0.0-2.9	0.5-1.0	.37	.37			
	10-33	25-50	30-48	20-30	1.30-1.50	0.42-1.40	0.01-0.03	3.0-5.9	0.0-0.5	.37	.37			
	33-44	30-75	15-48	10-25	1.40-1.55	4.00-14.00	0.03-0.06	0.0-2.9	0.0-0.5	.43	.43			
	44-60	30-75	15-48	10-25	1.40-1.55	1.40-4.00	0.05-0.08	0.0-2.9	0.0-0.5	.37	.37			
506:														
Pait------------------	0-3	35-50	35-40	15-27	0.98-1.34	14.00-42.00	0.05-0.12	0.0-2.9	1.0-4.0	.10	.28	5	7	38
	3-16	35-65	20-40	15-27	0.98-1.34	14.00-42.00	0.04-0.12	0.0-2.9	1.0-4.0	.05	.10			
	16-42	30-70	15-40	15-30	1.34-1.42	4.00-14.00	0.01-0.14	0.0-2.9	0.5-1.0	.02	.20			
	42-55	55-85	10-25	3-20	1.42-1.49	42.00-141.00	0.01-0.08	0.0-2.9	0.1-0.5	.05	.28			
	55-62	55-80	15-30	5-15	1.37-1.74	14.00-141.00	0.01-0.08	0.0-2.9	0.1-0.5	.05	.24			
507:														
Paulina---------------	0-3	5-18	45-68	28-38	0.69-0.83	1.40-4.00	0.28-0.31	3.0-5.9	2.0-8.0	.32	.32	5	6	48
	3-12	5-20	50-70	30-38	0.69-0.84	1.40-4.00	0.29-0.32	3.0-5.9	2.0-8.0	.32	.32			
	12-60	10-65	20-70	12-32	0.90-1.30	1.40-14.00	0.24-0.27	1.0-5.9	0.5-2.0	.37	.37			
508:														
Paulina, very gravelly substratum	0-3	5-18	45-68	28-38	0.69-0.83	1.40-4.00	0.28-0.31	3.0-5.9	2.0-8.0	.32	.32	4	6	48
	3-53	5-20	50-70	30-38	0.69-0.84	1.40-4.00	0.29-0.32	3.0-5.9	2.0-8.0	.32	.32			
	53-60	30-65	20-48	8-25	0.90-1.30	4.00-14.00	0.07-0.15	1.0-2.9	0.5-2.0	.17	.55			
509:														
Paulina---------------	0-1	5-25	50-70	10-35	0.10-0.30	4.00-14.00	0.30-0.60	---	20-80	---	---	5	2	134
	1-3	10-30	55-70	15-25	0.69-0.83	4.00-14.00	0.29-0.32	1.0-2.9	2.0-8.0	.37	.37			
	3-12	5-20	50-70	30-38	0.69-0.84	1.40-5.00	0.29-0.32	3.0-5.9	2.0-8.0	.32	.32			
	12-60	10-65	20-70	12-32	0.90-1.30	1.40-14.00	0.24-0.27	1.0-5.9	0.5-2.0	.37	.37			
Chinarise-------------	0-5	5-35	55-70	10-25	1.00-1.35	4.00-14.00	0.18-0.26	0.0-5.9	2.0-4.0	.43	.43	5	4	86
	5-18	5-50	38-69	12-30	1.11-1.35	1.40-14.00	0.14-0.28	0.0-5.9	1.0-3.0	.49	.49			
	18-50	5-75	13-68	12-27	1.29-1.35	4.00-42.00	0.16-0.32	0.0-5.9	0.5-1.0	.28	.28			
	50-60	30-85	5-46	10-24	1.22-1.35	4.00-14.00	0.14-0.26	0.0-5.9	0.5-1.0	.28	.28			
511:														
Pernty----------------	0-3	15-35	55-75	10-25	1.05-1.20	4.00-14.00	0.12-0.18	3.0-5.9	1.0-3.0	.24	.49	1	7	38
	3-12	20-50	25-45	25-35	1.05-1.20	1.40-4.00	0.09-0.14	6.0-9.0	0.2-1.5	.10	.32			
	12-22				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
512:														
Pernty	0-2	50-70	15-35	10-18	0.95-1.30	14.00-42.00	0.05-0.09	1.0-2.9	1.0-2.0	.10	.37	1	7	38
	2-6	50-70	15-35	10-18	0.95-1.30	14.00-42.00	0.06-0.14	1.0-2.9	1.0-2.0	.10	.32			
	6-18	50-70	10-20	20-35	0.97-1.30	1.40-14.00	0.08-0.17	3.0-5.9	0.2-1.0	.15	.43			
	18-28				---	---	---	---	---	---	---			
Chesebro	0-4	35-45	35-55	12-20	0.72-1.05	4.00-14.00	0.11-0.15	0.0-2.9	2.0-4.0	.10	.43	5	6	48
	4-24	35-45	35-55	12-20	0.72-1.05	4.00-14.00	0.08-0.17	0.0-2.9	2.0-4.0	.10	.43			
	24-60	30-55	25-40	22-32	0.99-1.30	4.00-14.00	0.08-0.20	3.0-5.9	0.5-2.0	.10	.49			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
513:														
Pernty	0-3	55-75	15-35	8-15	1.05-1.20	14.00-42.00	0.04-0.08	1.0-2.9	1.0-3.0	.10	.37	1	6	48
	3-12	20-50	25-45	25-35	1.05-1.20	1.40-4.00	0.09-0.14	6.0-9.0	0.2-1.5	.10	.32			
	12-22				---	---	---	---	---	---	---			
Cleavage	0-7	30-50	30-45	15-22	1.12-1.25	4.00-14.00	0.05-0.12	0.0-5.9	1.0-3.0	.15	.37	1	7	38
	7-11	30-50	25-45	23-35	1.20-1.30	1.40-4.00	0.05-0.15	3.0-5.9	0.5-1.0	.15	.37			
	11-21				---	---	---	---	---	---	---			
514:														
Pernty, south	0-3	30-50	30-45	18-25	1.05-1.20	4.00-14.00	0.04-0.07	3.0-5.9	1.0-3.0	.10	.43	1	8	0
	3-12	20-50	25-45	25-35	1.05-1.20	1.40-4.00	0.09-0.14	6.0-9.0	0.2-1.5	.10	.32			
	12-22				---	---	---	---	---	---	---			
Glencabin	0-4	55-80	10-25	5-18	0.90-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-4.0	.15	.20	3	4	86
	4-21	55-80	10-25	10-18	0.90-1.30	14.00-42.00	0.11-0.20	1.0-2.9	1.0-4.0	.17	.17			
	21-54	55-80	5-20	5-15	1.00-1.35	14.00-141.00	0.11-0.20	1.0-2.9	0.4-1.5	.10	.10			
	54-64				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
516:														
Pernty, south	0-3	15-35	55-75	10-25	1.05-1.20	4.00-14.00	0.12-0.18	3.0-5.9	1.0-3.0	.24	.49	1	7	38
	3-12	20-50	25-45	25-35	1.05-1.20	1.40-4.00	0.09-0.14	6.0-9.0	0.2-1.5	.10	.32			
	12-22				---	---	---	---	---	---	---			
Westbutte, north	0-3	30-50	30-45	15-22	1.12-1.25	4.00-14.00	0.04-0.07	3.0-5.9	1.0-3.0	.05	.32	2	8	0
	3-11	30-50	25-45	18-30	1.20-1.25	1.40-14.00	0.05-0.13	3.0-5.9	1.0-3.0	.10	.37			
	11-21	30-50	25-45	18-30	1.20-1.30	1.40-14.00	0.05-0.15	3.0-5.9	0.6-2.0	.10	.37			
	21-31				---	---	---	---	---	---	---			
Ninemile	0-2	25-40	25-45	30-38	1.26-1.41	1.40-4.00	0.07-0.14	3.0-5.9	1.0-3.0	.15	.37	1	8	0
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
517:														
Picturerock----------	0-3	30-50	35-45	15-25	0.92-1.29	4.00-42.00	0.23-0.27	1.0-5.9	1.0-3.0	.32	.32	5	5	56
	3-33	30-75	15-40	12-30	0.92-1.32	4.00-42.00	0.12-0.31	0.0-5.9	0.5-3.0	.24	.24			
	33-60	40-50	15-40	18-27	0.99-1.34	4.00-14.00	0.19-0.31	0.0-2.9	0.1-0.5	.37	.37			
518:														
Pitcheranch----------	0-20	15-25	55-70	20-25	1.07-1.33	4.00-14.00	0.19-0.21	3.0-5.9	1.0-4.0	.43	.43	5	6	48
	20-60	50-80	5-35	10-18	1.33-1.50	14.00-42.00	0.10-0.13	1.0-2.9	0.5-1.2	.28	.28			
519:														
Pitcheranch----------	0-2	10-35	55-60	10-25	0.59-0.74	14.00-42.00	0.21-0.23	1.0-2.9	10-12	.28	.28	5	5	56
	2-30	40-70	10-46	10-25	1.00-1.35	4.00-42.00	0.18-0.20	1.0-2.9	0.2-2.0	.43	.43			
	30-60	45-85	10-35	5-20	1.00-1.35	4.00-141.00	0.07-0.20	1.0-2.9	0.2-1.0	.24	.24			
Chinarise------------	0-5	5-35	55-70	10-25	1.00-1.35	4.00-14.00	0.18-0.26	0.0-5.9	2.0-4.0	.43	.43	5	4	86
	5-18	5-50	38-69	12-30	1.11-1.35	1.40-14.00	0.14-0.28	0.0-5.9	1.0-3.0	.49	.49			
	18-50	5-75	13-68	12-27	1.29-1.35	4.00-42.00	0.16-0.32	0.0-5.9	0.5-1.0	.28	.28			
	50-60	30-85	5-46	10-24	1.22-1.35	4.00-14.00	0.14-0.26	0.0-5.9	0.5-1.0	.28	.28			
520:														
Playas---------------	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	5	4	86
	6-60			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
521:														
Playas, saline-------	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	5	4	86
	6-60			35-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
522:														
Playas---------------	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	5	4	86
	6-60			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
Helphenstein---------	0-2	55-75	10-35	5-15	1.15-1.25	14.00-42.00	0.03-0.13	1.0-2.9	0.5-1.5	.32	.32	2	3	86
	2-8	20-35	55-70	9-20	1.15-1.25	4.00-14.00	0.05-0.18	1.0-2.9	0.5-1.5	.64	.64			
	8-34	10-40	40-70	20-30	1.25-1.30	0.42-4.00	0.05-0.06	3.0-5.9	0.2-0.5	.49	.49			
	34-60	20-60	30-70	10-25	1.30-1.40	4.00-42.00	0.04-0.05	1.0-5.9	0.2-0.5	.43	.43			
523:														
Poorjug--------------	0-2	75-88	5-22	5-14	1.29-1.34	42.00-141.00	0.06-0.09	1.0-2.9	0.2-1.0	.17	.28	1	2	134
	2-5	30-50	35-45	18-25	1.25-1.30	4.00-14.00	0.10-0.15	1.0-2.9	0.2-0.7	.20	.43			
	5-15	30-70	15-45	10-25	1.25-1.34	4.00-42.00	0.05-0.12	1.0-2.9	0.2-0.5	.17	.43			
	15-25				---	---	---	---	---	---	---			
Poorjug, overblown---	0-13	75-88	5-22	5-14	1.29-1.34	42.00-141.00	0.06-0.09	1.0-2.9	0.2-1.0	.17	.28	1	2	134
	13-19	30-50	35-45	18-25	1.25-1.30	4.00-14.00	0.10-0.15	1.0-2.9	0.2-0.7	.20	.43			
	19-29				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
524:														
Poorjug	0-2	55-75	15-35	5-15	1.29-1.34	14.00-42.00	0.04-0.08	1.0-2.9	0.2-1.0	.10	.37	1	6	48
	2-5	30-50	35-45	18-25	1.25-1.30	4.00-14.00	0.10-0.15	1.0-2.9	0.2-0.7	.20	.43			
	5-15	30-70	15-45	10-25	1.25-1.34	4.00-42.00	0.05-0.12	1.0-2.9	0.2-0.5	.17	.43			
	15-25				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
525:														
Porterfield	0-2	55-70	20-30	10-14	0.99-1.34	14.00-42.00	0.09-0.15	0.0-2.9	0.1-0.5	.17	.43	2	5	56
	2-9	30-50	30-45	20-25	0.99-1.34	4.00-14.00	0.11-0.24	1.0-5.9	0.1-0.5	.24	.43			
	9-12	50-70	25-35	5-15	0.99-1.35	4.00-42.00	0.08-0.20	0.0-2.9	0.0-0.2	.28	.37			
	12-22				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
526:														
Puzzlebark	0-2	75-88	5-24	2-12	0.95-1.35	42.00-141.00	0.09-0.12	1.0-2.9	0.2-1.0	.24	.24	1	1	220
	2-8	50-75	12-25	10-20	1.00-1.35	14.00-42.00	0.11-0.16	1.0-2.9	0.2-0.7	.28	.28			
	8-14	55-75	13-25	10-25	1.00-1.35	4.00-42.00	0.12-0.18	1.0-2.9	0.2-0.5	.17	.28			
	14-21				---	0.01-0.42	0.00-0.00	---	---	---	---			
	21-31				---	---	---	---	---	---	---			
Morehouse, moderately steep	0-5	88-98	4-10	3-8	0.97-1.27	42.00-141.00	0.05-0.08	0.0-2.9	0.5-1.0	.10	.10	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-60	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.17	.17			
Morehouse, gently sloping	0-5	88-98	4-10	3-8	0.97-1.27	42.00-141.00	0.05-0.08	0.0-2.9	0.5-1.0	.10	.10	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-60	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.17	.17			
527:														
Puzzlebark	0-2	55-75	15-25	5-15	0.95-1.35	14.00-42.00	0.12-0.16	1.0-2.9	0.2-1.0	.20	.28	1	4	86
	2-8	50-75	12-25	10-20	1.00-1.35	14.00-42.00	0.11-0.16	1.0-2.9	0.2-0.7	.28	.28			
	8-14	55-75	13-25	10-25	1.00-1.35	4.00-42.00	0.12-0.18	1.0-2.9	0.2-0.5	.17	.28			
	14-21				---	0.01-0.42	0.00-0.00	---	---	---	---			
	21-31				---	---	---	---	---	---	---			
Sandrock	0-3	75-88	5-25	4-10	1.10-1.35	14.00-42.00	0.17-0.22	1.0-2.9	0.6-0.8	.43	.43	1	1	220
	3-8	55-80	10-35	12-20	1.10-1.35	14.00-42.00	0.14-0.20	1.0-2.9	0.2-0.6	.20	.28			
	8-12	30-60	10-40	20-30	1.00-1.25	4.00-42.00	0.15-0.21	1.0-2.9	0.2-0.4	.17	.28			
	12-22				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
528:														
Rabbithills, overblown-----------	0-10	75-88	5-20	2-10	1.30-1.35	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.15	.32	1	2	134
	10-12	45-80	10-30	5-10	1.30-1.40	4.00-42.00	0.05-0.13	1.0-2.9	0.2-0.4	.32	.32			
	12-22	55-80	5-30	5-16	1.80-2.00	0.42-1.40	0.00-0.02	1.0-2.9	0.0-0.0	.37	.37			
	22-40	40-80	5-40	0-30	1.30-1.45	14.00-42.00	0.05-0.14	1.0-2.9	0.2-0.4	.43	.43			
	40-60				---	---	---	---	---	---	---			
Rabbithills----------	0-3	55-75	15-35	5-15	1.30-1.35	14.00-42.00	0.08-0.13	1.0-2.9	0.2-0.6	.15	.32	1	5	56
	3-12	45-80	10-30	5-16	1.30-1.40	4.00-42.00	0.09-0.13	1.0-2.9	0.2-0.4	.37	.37			
	12-22	55-80	5-30	5-16	1.80-2.00	0.42-1.40	0.00-0.02	1.0-2.9	0.0-0.0	.37	.37			
	22-40	40-80	5-40	0-30	1.30-1.45	14.00-42.00	0.05-0.14	1.0-2.9	0.2-0.4	.43	.43			
	40-60				---	---	---	---	---	---	---			
529:														
Rabbithills----------	0-3	85-95	0-10	2-8	1.30-1.35	42.00-141.00	0.02-0.06	1.0-2.9	0.2-0.6	.05	.10	1	1	220
	3-12	45-80	10-30	5-16	1.30-1.40	4.00-42.00	0.09-0.13	1.0-2.9	0.2-0.4	.37	.37			
	12-22	55-80	5-30	5-16	1.80-2.00	0.42-1.40	0.00-0.02	1.0-2.9	0.0-0.0	.37	.37			
	22-40	40-80	5-40	0-30	1.30-1.45	14.00-42.00	0.05-0.14	1.0-2.9	0.2-0.4	.43	.43			
	40-60				---	---	---	---	---	---	---			
Rabbithills, overblown-----------	0-10	85-95	2-10	2-8	1.30-1.35	42.00-141.00	0.02-0.06	1.0-2.9	0.2-0.6	.10	.10	1	1	220
	10-12	45-80	10-30	5-10	1.30-1.40	4.00-42.00	0.05-0.13	1.0-2.9	0.2-0.4	.32	.32			
	12-22	55-80	5-30	5-16	1.80-2.00	0.42-1.40	0.00-0.02	1.0-2.9	0.0-0.0	.37	.37			
	22-40	40-80	5-40	0-30	1.30-1.45	14.00-42.00	0.05-0.14	1.0-2.9	0.2-0.4	.43	.43			
	40-60				---	---	---	---	---	---	---			
530:														
Rabbithills----------	0-3	75-88	5-20	2-10	1.30-1.35	14.00-42.00	0.04-0.07	1.0-2.9	0.2-0.6	.10	.24	1	2	134
	3-12	45-80	10-30	5-16	1.30-1.40	4.00-42.00	0.09-0.13	1.0-2.9	0.2-0.4	.37	.37			
	12-22	55-80	5-30	5-16	1.80-2.00	0.42-1.40	0.00-0.02	1.0-2.9	0.0-0.0	.37	.37			
	22-40	40-80	5-40	0-30	1.30-1.45	14.00-42.00	0.05-0.14	1.0-2.9	0.2-0.4	.43	.43			
	40-60				---	---	---	---	---	---	---			
531:														
Rabbithills, sodic---	0-3	55-75	15-35	6-15	1.30-1.35	14.00-42.00	0.07-0.11	1.0-2.9	0.2-0.6	.15	.28	1	5	56
	3-12	45-80	10-30	5-16	1.30-1.40	4.00-42.00	0.09-0.13	1.0-2.9	0.2-0.4	.37	.37			
	12-22	55-80	5-30	5-16	1.80-2.00	0.42-1.40	0.00-0.02	1.0-2.9	0.0-0.0	.37	.37			
	22-40	40-80	5-40	0-30	1.30-1.45	14.00-42.00	0.05-0.14	1.0-2.9	0.2-0.4	.43	.43			
	40-60				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
532:														
Rabbithills	0-13	30-50	30-45	18-27	1.30-1.40	4.00-14.00	0.11-0.15	1.0-2.9	0.4-0.6	.20	.37	1	6	48
	13-22	55-80	5-30	5-16	1.80-2.00	0.42-1.40	0.00-0.02	1.0-2.9	0.0-0.0	.37	.37			
	22-45	50-80	5-30	4-15	1.60-1.75	14.00-141.00	0.04-0.09	1.0-2.9	0.2-0.4	.10	.20			
	45-60				---	---	---	---	---	---	---			
533:														
Rabbithills	0-3	75-88	5-20	2-10	1.30-1.35	14.00-42.00	0.02-0.05	1.0-2.9	0.2-0.6	.05	.24	1	3	86
	3-12	45-80	10-30	5-16	1.30-1.40	4.00-42.00	0.09-0.13	1.0-2.9	0.2-0.4	.37	.37			
	12-22	55-80	5-30	5-16	1.80-2.00	0.42-1.40	0.00-0.02	1.0-2.9	0.0-0.0	.37	.37			
	22-40	40-80	5-40	0-30	1.30-1.45	14.00-42.00	0.05-0.14	1.0-2.9	0.2-0.4	.43	.43			
	40-60				---	---	---	---	---	---	---			
534:														
Rabbithills	0-3	55-75	15-35	6-15	1.30-1.35	14.00-42.00	0.07-0.11	1.0-2.9	0.2-0.6	.15	.28	1	5	56
	3-12	45-80	10-30	5-16	1.30-1.40	4.00-42.00	0.09-0.13	1.0-2.9	0.2-0.4	.37	.37			
	12-22	55-80	5-30	5-16	1.80-2.00	0.42-1.40	0.00-0.02	1.0-2.9	0.0-0.0	.37	.37			
	22-40	40-80	5-40	0-30	1.30-1.45	14.00-42.00	0.05-0.14	1.0-2.9	0.2-0.4	.43	.43			
	40-60				---	---	---	---	---	---	---			
Helphenstein, frequently ponded	0-4	5-15	55-60	30-35	0.98-1.34	4.00-14.00	0.29-0.32	3.0-5.9	0.1-0.5	.37	.37	5	5	56
	4-9	5-15	55-60	30-35	0.98-1.34	4.00-14.00	0.26-0.32	3.0-5.9	0.1-0.5	.37	.37			
	9-18	60-70	25-30	5-12	0.99-1.35	4.00-14.00	0.14-0.20	0.0-2.9	0.0-0.3	.32	.32			
	18-60	40-60	30-45	8-15	0.99-1.35	4.00-14.00	0.17-0.26	0.0-2.9	0.0-0.2	.49	.49			
535:														
Ratto	0-3	30-50	30-50	14-22	1.20-1.30	4.00-14.00	0.05-0.12	0.0-2.9	0.5-1.0	.15	.43	1	8	0
	3-9	20-40	25-45	27-35	1.35-1.45	1.40-4.00	0.13-0.21	1.0-5.9	0.2-0.5	.24	.43			
	9-15	20-40	25-45	35-45	1.30-1.45	0.42-1.40	0.13-0.21	3.0-8.9	0.2-0.5	.37	.37			
	15-19				---	0.01-0.42	0.00-0.00	---	---	---	---			
	19-60	75-85	5-20	5-10	1.70-1.80	42.00-141.00	0.00-0.00	0.0-2.9	0.2-0.5	.05	.10			
536:														
Raz, overblown	0-4	55-75	15-35	8-15	1.27-1.38	14.00-42.00	0.08-0.13	1.0-5.9	0.3-0.5	.24	.37	1	5	56
	4-12	30-60	18-40	20-30	1.28-1.29	4.00-14.00	0.11-0.19	1.0-5.9	0.1-0.3	.32	.32			
	12-17	30-70	15-40	12-30	1.34-1.50	1.40-4.00	0.07-0.19	0.0-5.9	0.0-0.2	.28	.28			
	17-30				---	0.01-0.42	0.00-0.00	---	---	---	---			
	30-40				---	---	---	---	---	---	---			
537:														
Raz	0-4	55-75	15-35	8-15	1.27-1.38	14.00-42.00	0.07-0.11	0.0-5.9	0.3-0.5	.20	.37	1	5	56
	4-12	30-60	18-40	20-30	1.28-1.29	4.00-14.00	0.11-0.19	1.0-5.9	0.1-0.3	.32	.32			
	12-17	30-70	15-40	12-30	1.34-1.50	1.40-4.00	0.07-0.19	0.0-5.9	0.0-0.2	.28	.28			
	17-30				---	0.01-0.42	0.00-0.00	---	---	---	---			
	30-40				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
537:														
Brace	0-10	35-50	30-45	10-25	1.27-1.38	4.00-14.00	0.10-0.15	0.0-5.9	0.3-0.5	.20	.43	2	7	38
	10-14	25-70	10-40	20-35	1.33-1.64	1.40-14.00	0.09-0.19	3.0-5.9	0.1-0.3	.20	.43			
	14-22	28-50	30-42	20-30	1.41-1.52	1.40-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.20	.37			
	22-26				---	0.01-0.42	0.00-0.00	---	---	---	---			
	26-36				---	---	---	---	---	---	---			
538:														
Raz, high precipitation	0-4	35-50	30-45	10-25	1.27-1.38	4.00-14.00	0.05-0.12	1.0-5.9	0.3-0.5	.10	.37	1	8	0
	4-12	30-60	18-40	20-30	1.28-1.29	4.00-14.00	0.11-0.19	1.0-5.9	0.1-0.3	.32	.32			
	12-17	30-70	15-40	12-30	1.34-1.50	1.40-4.00	0.07-0.19	0.0-5.9	0.0-0.2	.28	.28			
	17-30				---	0.01-0.42	0.00-0.00	---	---	---	---			
	30-40				---	---	---	---	---	---	---			
Brace, high precipitation	0-10	35-50	30-45	15-26	1.34-1.38	4.00-14.00	0.11-0.15	0.0-5.9	0.5-1.0	.20	.43	2	6	48
	10-14	25-70	10-40	20-35	1.33-1.64	1.40-14.00	0.09-0.19	3.0-5.9	0.1-0.3	.20	.43			
	14-22	28-50	30-42	20-30	1.41-1.52	1.40-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.20	.37			
	22-26				---	0.01-0.42	0.00-0.00	---	---	---	---			
	26-36				---	---	---	---	---	---	---			
539:														
Raz, low precipitation	0-4	35-50	30-45	10-25	1.27-1.38	4.00-14.00	0.05-0.12	1.0-5.9	0.3-0.5	.10	.37	1	8	0
	4-12	30-60	18-40	20-30	1.28-1.29	4.00-14.00	0.11-0.19	1.0-5.9	0.1-0.3	.32	.32			
	12-17	30-70	15-40	12-30	1.34-1.50	1.40-4.00	0.07-0.19	0.0-5.9	0.0-0.2	.28	.28			
	17-30				---	0.01-0.42	0.00-0.00	---	---	---	---			
	30-40				---	---	---	---	---	---	---			
Brace, low precipitation	0-10	35-50	30-45	15-26	1.34-1.38	4.00-14.00	0.11-0.15	0.0-5.9	0.5-1.0	.20	.43	2	6	48
	10-14	25-70	10-40	20-35	1.33-1.64	1.40-14.00	0.09-0.19	3.0-5.9	0.1-0.3	.20	.43			
	14-22	28-50	30-42	20-30	1.41-1.52	1.40-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.20	.37			
	22-26				---	0.01-0.42	0.00-0.00	---	---	---	---			
	26-36				---	---	---	---	---	---	---			
540:														
Raz, overblown	0-10	75-88	10-20	4-10	1.27-1.38	42.00-141.00	0.04-0.07	0.0-2.9	0.3-0.5	.20	.28	1	2	134
	10-12	30-60	18-40	20-30	1.28-1.29	4.00-14.00	0.11-0.19	1.0-5.9	0.1-0.3	.32	.32			
	12-17	30-70	15-40	12-30	1.34-1.50	1.40-4.00	0.07-0.19	0.0-5.9	0.0-0.2	.28	.28			
	17-30				---	0.01-0.42	0.00-0.00	---	---	---	---			
	30-40				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
540:														
Brace, overblown-----	0-10	75-85	8-20	5-10	1.51-1.65	42.00-141.00	0.04-0.07	0.0-2.9	0.2-0.8	.15	.20	2	2	134
	10-14	25-70	10-40	20-35	1.33-1.64	1.40-14.00	0.09-0.19	3.0-5.9	0.1-0.3	.20	.43			
	14-22	28-50	30-42	20-30	1.41-1.52	1.40-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.20	.37			
	22-26				---	0.01-0.42	0.00-0.00	---	---	---	---			
	26-36				---	---	---	---	---	---	---			
541:														
Raz------------------	0-4	35-50	30-45	10-25	1.27-1.38	4.00-14.00	0.10-0.15	1.0-5.9	0.3-0.5	.24	.37	1	7	38
	4-12	30-60	18-40	20-30	1.28-1.29	4.00-14.00	0.11-0.19	1.0-5.9	0.1-0.3	.32	.32			
	12-17	30-70	15-40	12-30	1.34-1.50	1.40-4.00	0.07-0.19	0.0-5.9	0.0-0.2	.28	.28			
	17-30				---	0.01-0.42	0.00-0.00	---	---	---	---			
	30-40				---	---	---	---	---	---	---			
Poorjug--------------	0-2	55-70	20-35	11-18	1.29-1.34	14.00-42.00	0.08-0.13	1.0-2.9	0.2-1.0	.20	.37	1	5	56
	2-5	30-50	35-45	18-25	1.25-1.30	4.00-14.00	0.10-0.15	1.0-2.9	0.2-0.7	.20	.43			
	5-19	30-70	15-45	10-25	1.25-1.34	4.00-42.00	0.05-0.12	1.0-2.9	0.2-0.5	.17	.43			
	19-29				---	---	---	---	---	---	---			
542:														
Raz------------------	0-4	60-70	20-22	12-18	1.27-1.38	14.00-42.00	0.07-0.11	0.0-2.9	0.3-0.5	.17	.28	1	5	56
	4-12	30-60	18-40	20-30	1.28-1.29	4.00-14.00	0.11-0.19	1.0-5.9	0.1-0.3	.32	.32			
	12-17	30-70	15-40	12-30	1.34-1.50	1.40-4.00	0.07-0.19	0.0-5.9	0.0-0.2	.28	.28			
	17-30				---	0.01-0.42	0.00-0.00	---	---	---	---			
	30-40				---	---	---	---	---	---	---			
Reallis--------------	0-4	75-85	5-20	4-10	1.27-1.38	42.00-141.00	0.04-0.07	0.0-2.9	0.3-0.5	.15	.24	5	2	134
	4-10	65-75	15-30	8-12	1.27-1.39	14.00-42.00	0.11-0.13	0.0-2.9	0.3-0.5	.32	.32			
	10-16	60-70	15-30	5-12	1.42-1.48	1.40-4.00	0.10-0.13	0.0-2.9	0.2-0.4	.37	.37			
	16-29	60-70	15-30	5-15	1.43-1.49	1.40-4.00	0.08-0.14	0.0-2.9	0.1-0.3	.32	.32			
	29-44	65-85	10-20	5-15	1.28-1.39	1.40-4.00	0.03-0.12	0.0-2.9	0.1-0.3	.37	.37			
	44-60	45-80	15-40	5-15	1.29-1.40	4.00-141.00	0.04-0.18	0.0-2.9	0.1-0.2	.43	.43			
543:														
Raztack--------------	0-4	30-50	30-50	12-18	1.00-1.35	14.00-42.00	0.24-0.27	1.0-2.9	0.5-0.8	.49	.49	4	4	86
	4-14	25-45	30-45	20-35	1.00-1.35	4.00-14.00	0.24-0.27	3.0-5.9	0.5-0.8	.32	.32			
	14-33	20-40	20-35	42-58	1.10-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.2-0.6	.24	.24			
	33-44	35-60	25-45	20-40	1.25-1.35	4.00-14.00	0.19-0.21	3.0-5.9	0.2-0.4	.32	.32			
	44-50	30-85	10-36	6-15	1.80-2.00	0.42-1.40	0.02-0.04	1.0-2.9	0.2-0.2	.32	.32			
	50-70	30-85	10-35	6-35	1.25-1.75	4.00-42.00	0.05-0.21	1.0-5.9	0.2-0.4	.32	.32			
Silverash------------	0-2	50-70	20-35	10-18	0.95-1.35	14.00-42.00	0.20-0.23	1.0-2.9	0.5-1.0	.37	.37	5	2	134
	2-8	30-50	30-60	10-18	1.00-1.35	14.00-42.00	0.24-0.27	1.0-2.9	0.2-0.8	.43	.43			
	8-21	20-70	20-40	35-50	1.25-1.50	0.42-1.40	0.14-0.16	6.0-9.0	0.2-0.6	.24	.24			
	21-62	30-70	10-30	18-35	1.30-1.60	1.40-42.00	0.14-0.16	1.0-5.9	0.2-0.6	.20	.20			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
543:														
Embal	0-2	50-70	20-40	5-18	1.00-1.35	14.00-42.00	0.25-0.33	1.0-2.9	1.0-3.0	.43	.43	4	2	134
	2-6	30-75	20-60	10-18	0.90-1.30	4.00-42.00	0.13-0.18	1.0-2.9	1.0-2.0	.28	.28			
	6-25	30-75	20-60	10-18	0.90-1.30	4.00-42.00	0.13-0.18	1.0-2.9	1.0-2.0	.28	.28			
	25-34	55-75	20-35	10-18	0.95-1.35	14.00-42.00	0.05-0.11	1.0-2.9	0.2-1.0	.20	.32			
	34-42	55-75	20-35	10-18	1.60-1.70	14.00-42.00	0.08-0.14	1.0-2.9	0.2-0.5	.15	.32			
	42-60	55-75	20-35	10-18	1.70-2.00	0.42-1.40	0.08-0.14	1.0-2.9	0.2-0.5	.15	.32			
544:														
Reallis	0-4	65-75	15-30	8-10	1.27-1.38	14.00-42.00	0.13-0.15	0.0-2.9	0.3-0.5	.32	.32	5	3	86
	4-10	65-75	15-30	8-12	1.27-1.39	14.00-42.00	0.11-0.13	0.0-2.9	0.3-0.5	.32	.32			
	10-16	60-70	15-30	5-12	1.42-1.48	1.40-4.00	0.10-0.13	0.0-2.9	0.2-0.4	.37	.37			
	16-29	60-70	15-30	5-15	1.43-1.49	1.40-4.00	0.08-0.14	0.0-2.9	0.1-0.3	.32	.32			
	29-44	65-85	10-20	5-15	1.28-1.39	1.40-4.00	0.03-0.12	0.0-2.9	0.1-0.3	.37	.37			
	44-60	45-80	15-40	5-15	1.29-1.40	4.00-141.00	0.04-0.18	0.0-2.9	0.1-0.2	.43	.43			
545:														
Reallis	0-4	75-85	5-20	4-10	1.27-1.38	42.00-141.00	0.06-0.08	0.0-2.9	0.3-0.5	.24	.24	5	2	134
	4-10	65-75	15-30	8-12	1.27-1.39	14.00-42.00	0.11-0.13	0.0-2.9	0.3-0.5	.32	.32			
	10-16	60-70	15-30	5-12	1.42-1.48	1.40-4.00	0.10-0.13	0.0-2.9	0.2-0.4	.37	.37			
	16-29	60-70	15-30	5-15	1.43-1.49	1.40-4.00	0.08-0.14	0.0-2.9	0.1-0.3	.32	.32			
	29-44	65-85	10-20	5-15	1.28-1.39	1.40-4.00	0.03-0.12	0.0-2.9	0.1-0.3	.37	.37			
	44-60	45-80	15-40	5-15	1.29-1.40	4.00-141.00	0.04-0.18	0.0-2.9	0.1-0.2	.43	.43			
546:														
Reallis, sandy loam surface	0-4	65-75	15-30	8-10	1.27-1.38	14.00-42.00	0.11-0.13	0.0-2.9	0.3-0.5	.28	.28	5	3	86
	4-10	65-75	15-30	8-12	1.27-1.39	14.00-42.00	0.11-0.13	0.0-2.9	0.3-0.5	.32	.32			
	10-16	60-70	15-30	5-12	1.42-1.48	1.40-4.00	0.10-0.13	0.0-2.9	0.2-0.4	.37	.37			
	16-29	60-70	15-30	5-15	1.43-1.49	1.40-4.00	0.08-0.14	0.0-2.9	0.1-0.3	.32	.32			
	29-44	65-85	10-20	5-15	1.28-1.39	1.40-4.00	0.03-0.12	0.0-2.9	0.1-0.3	.37	.37			
	44-60	45-80	15-40	5-15	1.29-1.40	4.00-141.00	0.04-0.18	0.0-2.9	0.1-0.2	.43	.43			
Reallis, fine sandy loam surface	0-4	65-75	15-30	8-10	1.27-1.38	14.00-42.00	0.13-0.15	0.0-2.9	0.3-0.5	.32	.32	5	3	86
	4-10	65-75	15-30	8-12	1.27-1.39	14.00-42.00	0.11-0.13	0.0-2.9	0.3-0.5	.32	.32			
	10-16	60-70	15-30	5-12	1.42-1.48	1.40-4.00	0.10-0.13	0.0-2.9	0.2-0.4	.37	.37			
	16-29	60-70	15-30	5-15	1.43-1.49	1.40-4.00	0.08-0.14	0.0-2.9	0.1-0.3	.32	.32			
	29-44	65-85	10-20	5-15	1.28-1.39	1.40-4.00	0.03-0.12	0.0-2.9	0.1-0.3	.37	.37			
	44-60	45-80	15-40	5-15	1.29-1.40	4.00-141.00	0.04-0.18	0.0-2.9	0.1-0.2	.43	.43			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
547:														
Reallis	0-4	65-75	15-30	8-10	1.27-1.38	14.00-42.00	0.13-0.15	0.0-2.9	0.3-0.5	.32	.32	5	3	86
	4-10	65-75	15-30	8-12	1.27-1.39	14.00-42.00	0.11-0.13	0.0-2.9	0.3-0.5	.32	.32			
	10-16	60-70	15-30	5-12	1.42-1.48	1.40-4.00	0.10-0.13	0.0-2.9	0.2-0.4	.37	.37			
	16-29	60-70	15-30	5-15	1.43-1.49	1.40-4.00	0.08-0.14	0.0-2.9	0.1-0.3	.32	.32			
	29-44	65-85	10-20	5-15	1.28-1.39	1.40-4.00	0.03-0.12	0.0-2.9	0.1-0.3	.37	.37			
	44-60	45-80	15-40	5-15	1.29-1.40	4.00-141.00	0.04-0.18	0.0-2.9	0.1-0.2	.43	.43			
Yankeewell	0-3	50-75	10-35	10-15	1.12-1.16	14.00-42.00	0.05-0.09	1.0-2.9	0.6-1.0	.10	.24	1	6	48
	3-6	40-70	20-40	12-24	1.25-1.30	4.00-14.00	0.12-0.16	3.0-5.9	0.2-0.6	.20	.37			
	6-11	25-40	25-40	27-35	1.43-1.50	1.40-4.00	0.15-0.21	6.0-9.0	0.2-0.6	.37	.37			
	11-25				---	0.01-0.42	0.00-0.00	---	---	---	---			
	25-35				---	---	---	---	---	---	---			
548:														
Redcanyon, north	0-8	30-50	30-50	18-27	1.12-1.22	4.00-14.00	0.05-0.13	1.0-2.9	1.0-2.0	.05	.37	2	8	0
	8-18	30-50	30-50	18-27	1.12-1.30	4.00-14.00	0.08-0.15	1.0-2.9	1.0-2.0	.10	.37			
	18-29	30-50	30-50	20-30	1.25-1.30	4.00-14.00	0.05-0.15	1.0-2.9	0.2-0.8	.10	.43			
	29-31	30-50	30-50	18-27	1.25-1.30	4.00-14.00	0.05-0.14	1.0-2.9	0.2-0.4	.05	.49			
	31-41				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
549:														
Redcanyon, south	0-8	30-50	30-50	18-27	1.12-1.22	4.00-14.00	0.05-0.13	1.0-2.9	1.0-2.0	.05	.37	2	8	0
	8-18	30-50	30-50	18-27	1.12-1.30	4.00-14.00	0.08-0.15	1.0-2.9	1.0-2.0	.10	.37			
	18-29	30-50	30-50	20-30	1.25-1.30	4.00-14.00	0.05-0.15	1.0-2.9	0.2-0.8	.10	.43			
	29-31	30-50	30-50	18-27	1.25-1.30	4.00-14.00	0.05-0.14	1.0-2.9	0.2-0.4	.05	.49			
	31-41				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
550:														
Redcliff, south	0-3	35-50	35-45	14-18	1.18-1.33	14.00-42.00	0.05-0.08	0.0-2.9	1.0-2.0	.15	.37	2	7	38
	3-12	25-60	25-45	14-20	1.18-1.33	4.00-42.00	0.05-0.15	0.0-2.9	1.0-2.0	.10	.28			
	12-32	50-70	3-15	15-35	1.24-1.39	4.00-14.00	0.04-0.10	0.0-5.9	0.1-1.0	.05	.20			
	32-42				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
551:														
Reese	0-4	5-15	42-55	42-55	1.15-1.45	0.42-1.40	0.15-0.17	6.0-9.0	1.0-3.0	.28	.28	5	4	86
	4-10	30-50	30-48	10-25	1.30-1.45	1.40-4.00	0.01-0.03	0.0-2.9	0.5-1.0	.37	.37			
	10-33	25-50	30-48	20-30	1.30-1.50	0.42-1.40	0.01-0.03	3.0-5.9	0.0-0.5	.37	.37			
	33-44	30-75	15-48	10-25	1.40-1.55	4.00-14.00	0.03-0.06	0.0-2.9	0.0-0.5	.43	.43			
	44-60	30-75	15-48	10-25	1.40-1.55	1.40-4.00	0.05-0.08	0.0-2.9	0.0-0.5	.37	.37			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
551:														
Ozamis	0-10	5-15	45-55	40-50	1.05-1.33	1.40-4.00	0.04-0.15	3.0-5.9	2.0-4.0	.20	.20	5	4	86
	10-34	5-45	30-55	25-45	1.09-1.25	1.40-4.00	0.19-0.21	3.0-5.9	1.0-3.0	.43	.43			
	34-36	90-98	2-8	2-6	1.20-1.40	42.00-141.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	36-60	10-65	20-55	10-32	1.00-1.35	1.40-42.00	0.11-0.21	1.0-5.9	0.5-1.0	.43	.43			
552:														
Reluctan	0-2	40-50	30-40	15-25	1.30-1.40	4.00-14.00	0.12-0.15	0.0-2.9	1.0-2.0	.32	.32	2	6	48
	2-9	40-65	20-40	15-25	1.40-1.50	4.00-14.00	0.12-0.15	0.0-2.9	1.0-2.0	.20	.20			
	9-26	25-60	15-40	25-35	1.40-1.50	1.40-4.00	0.14-0.17	3.0-5.9	0.5-2.0	.24	.24			
	26-36				---	---	---	---	---	---	---			
553:														
Reluctan	0-2	55-75	15-35	5-15	1.30-1.40	14.00-42.00	0.07-0.11	0.0-2.9	1.0-2.0	.17	.32	2	5	56
	2-9	40-65	20-40	15-25	1.40-1.50	4.00-14.00	0.12-0.15	0.0-2.9	1.0-2.0	.20	.20			
	9-26	25-60	15-40	25-35	1.40-1.50	1.40-4.00	0.14-0.17	3.0-5.9	0.5-2.0	.24	.24			
	26-36				---	---	---	---	---	---	---			
Arness	0-2	38-45	37-45	10-24	1.17-1.33	4.00-14.00	0.10-0.15	0.0-5.9	1.0-3.0	.15	.28	1	7	38
	2-9	34-42	39-43	16-26	1.23-1.38	4.00-14.00	0.11-0.14	0.0-5.9	1.0-3.0	.20	.37			
	9-17	32-35	33-35	30-35	1.38-1.45	1.40-4.00	0.12-0.18	3.0-5.9	0.1-0.5	.20	.37			
	17-21				---	0.01-0.42	0.00-0.00	---	---	---	---			
	21-31				---	---	---	---	---	---	---			
554:														
Riddleranch, north	0-8	30-50	30-45	15-22	1.20-1.25	4.00-14.00	0.11-0.15	1.0-2.9	1.0-2.0	.17	.32	2	6	48
	8-28	30-45	30-45	20-28	1.25-1.30	4.00-14.00	0.04-0.13	1.0-2.9	0.2-0.7	.10	.32			
	28-38				---	---	---	---	---	---	---			
555:														
Riddleranch, north	0-8	30-50	30-45	15-22	1.20-1.25	4.00-14.00	0.05-0.12	1.0-2.9	1.0-2.0	.10	.32	2	7	38
	8-28	30-45	30-45	20-28	1.25-1.30	4.00-14.00	0.04-0.13	1.0-2.9	0.2-0.7	.10	.32			
	28-38				---	---	---	---	---	---	---			
556:														
Riddleranch, south	0-8	55-75	15-35	10-15	1.20-1.25	14.00-42.00	0.04-0.08	1.0-2.9	1.0-2.0	.10	.28	2	6	48
	8-28	30-45	30-45	20-28	1.25-1.30	4.00-14.00	0.04-0.13	1.0-2.9	0.2-0.7	.10	.32			
	28-38				---	---	---	---	---	---	---			
Lambring, north	0-5	35-48	30-45	10-26	1.22-1.27	4.00-14.00	0.05-0.12	0.0-5.9	2.0-3.0	.10	.32	3	7	38
	5-20	55-70	20-26	10-18	1.22-1.27	14.00-42.00	0.04-0.08	0.0-2.9	2.0-3.0	.05	.20			
	20-50	45-85	10-32	5-15	1.36-1.59	14.00-42.00	0.01-0.05	0.0-2.9	0.1-0.5	.05	.24			
	50-60				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
557:														
Rinconflat	0-4	35-50	30-45	15-27	1.34-1.38	4.00-14.00	0.11-0.15	1.0-2.9	0.5-1.0	.17	.37	5	6	48
	4-29	35-60	15-45	18-27	1.25-1.40	4.00-42.00	0.05-0.15	1.0-2.9	0.2-0.6	.15	.37			
	29-61	50-75	15-35	10-27	1.25-1.40	4.00-42.00	0.04-0.11	1.0-2.9	0.2-0.6	.15	.28			
558:														
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Rubble land	0-60				---	---	---	---	---	---	---	---	---	---
559:														
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Blackhills	0-2	90-95	5-8	5-15	1.00-1.35	42.00-141.00	0.08-0.14	0.0-2.9	1.0-2.0	.05	.15	1	1	220
	2-8	60-80	15-25	5-15	1.00-1.35	14.00-141.00	0.05-0.16	0.0-2.9	1.0-2.0	.10	.28			
	8-11	60-90	15-25	5-15	1.00-1.35	14.00-141.00	0.01-0.14	0.0-2.9	0.5-1.0	.05	.28			
	11-21				---	---	---	---	---	---	---			
560:														
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Blackhills	0-2	60-70	20-25	5-15	1.00-1.35	14.00-42.00	0.08-0.14	0.0-2.9	1.0-2.0	.05	.28	1	7	38
	2-8	60-80	15-25	5-15	1.00-1.35	14.00-141.00	0.05-0.16	0.0-2.9	1.0-2.0	.10	.28			
	8-11	60-80	15-25	5-15	1.00-1.35	14.00-141.00	0.01-0.14	0.0-2.9	0.5-1.0	.05	.28			
	11-21				---	---	---	---	---	---	---			
Glencabin, north	0-5	55-70	15-35	10-15	0.85-1.30	14.00-42.00	0.12-0.18	1.0-2.9	1.0-3.0	.17	.28	2	4	86
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			
561:														
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Felcher, south	0-4	25-40	25-45	28-35	1.32-1.50	1.40-4.00	0.07-0.14	3.0-5.9	0.3-0.5	.10	.32	2	8	0
	4-14	25-50	30-40	20-35	1.32-1.51	1.40-14.00	0.05-0.14	3.0-5.9	0.2-0.5	.15	.37			
	14-27	30-75	8-45	18-25	1.38-1.64	4.00-42.00	0.02-0.12	3.0-5.9	0.1-0.3	.05	.32			
	27-37				---	---	---	---	---	---	---			
562:														
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Shukash	0-3	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.05	.05	4	2	134
	3-10	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02			
	10-37	80-95	0-10	0-5	0.90-1.20	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	37-60	40-70	30-50	10-20	1.00-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.2-0.6	.10	.32			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
563:														
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Xeric Haplocambids	0-3	50-70	20-30	10-18	1.34-1.40	14.00-42.00	0.02-0.05	1.0-2.9	0.4-1.0	.05	.28	1	8	0
	3-18	30-70	20-40	10-35	1.30-1.40	1.40-42.00	0.04-0.13	1.0-5.9	0.4-1.0	.10	.37			
	18-28				---	---	---	---	---	---	---			
564:														
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Xeric Haplocambids, south	0-3	50-70	20-30	10-18	1.34-1.40	14.00-42.00	0.02-0.05	1.0-2.9	0.4-1.0	.05	.28	1	8	0
	3-18	30-70	20-40	10-35	1.30-1.40	1.40-42.00	0.04-0.13	1.0-5.9	0.4-1.0	.10	.37			
	18-28				---	---	---	---	---	---	---			
Rubble land	0-60				---	---	---	---	---	---	---	---	---	---
565:														
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Xerolls, south	0-7	55-70	15-30	10-18	0.95-1.35	14.00-42.00	0.03-0.06	1.0-2.9	1.0-2.0	.02	.37	1	7	38
	7-11	30-70	15-40	10-35	0.97-1.60	1.40-42.00	0.03-0.11	1.0-5.9	1.0-2.0	.05	.37			
	11-21				---	---	---	---	---	---	---			
566:														
Royst	0-3	30-50	30-45	18-24	1.10-1.15	4.00-14.00	0.07-0.12	3.0-5.9	1.0-3.0	.15	.37	2	8	0
	3-9	30-50	30-45	20-26	1.10-1.25	4.00-14.00	0.07-0.12	3.0-5.9	1.0-3.0	.15	.37			
	9-25	25-40	20-40	35-40	1.25-1.43	0.42-1.40	0.09-0.14	6.0-9.0	0.5-1.0	.15	.32			
	25-35				---	---	---	---	---	---	---			
567:														
Royst	0-3	30-50	30-45	18-24	1.10-1.15	4.00-14.00	0.07-0.12	3.0-5.9	1.0-3.0	.15	.37	2	8	0
	3-9	30-50	30-45	20-26	1.10-1.25	4.00-14.00	0.07-0.12	3.0-5.9	1.0-3.0	.15	.37			
	9-25	25-40	20-40	35-40	1.25-1.43	0.42-1.40	0.09-0.14	6.0-9.0	0.5-1.0	.15	.32			
	25-35				---	---	---	---	---	---	---			
Ninemile	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.05-0.12	1.0-2.9	1.0-3.0	.15	.43	1	7	38
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
568:														
Royst	0-3	30-50	30-45	18-24	1.10-1.15	4.00-14.00	0.07-0.12	3.0-5.9	1.0-3.0	.10	.37	2	8	0
	3-9	30-50	30-45	20-26	1.10-1.25	4.00-14.00	0.07-0.12	3.0-5.9	1.0-3.0	.15	.37			
	9-25	25-40	20-40	35-40	1.25-1.43	0.42-1.40	0.09-0.14	6.0-9.0	0.5-1.0	.15	.32			
	25-35				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
568:														
Nuss	0-3	30-50	35-45	15-25	1.19-1.34	4.00-14.00	0.10-0.15	0.0-2.9	1.0-2.0	.20	.43	1	7	38
	3-17	25-45	35-40	20-35	1.21-1.29	4.00-14.00	0.10-0.20	1.0-5.9	0.8-1.5	.37	.37			
	17-27				---	---	---	---	---	---	---			
569:														
Sagehen	0-3	30-50	30-40	20-25	1.25-1.30	4.00-14.00	0.05-0.13	1.0-2.9	0.2-0.8	.10	.37	1	8	0
	3-11	30-50	30-40	25-30	1.25-1.32	1.40-4.00	0.05-0.13	1.0-2.9	0.2-0.6	.15	.43			
	11-21				---	---	---	---	---	---	---			
570:														
Sagehen	0-3	30-50	30-40	20-25	1.25-1.30	4.00-14.00	0.04-0.07	1.0-2.9	0.2-0.8	.05	.37	1	8	0
	3-11	30-50	30-40	25-30	1.25-1.32	1.40-4.00	0.05-0.13	1.0-2.9	0.2-0.6	.15	.43			
	11-21				---	---	---	---	---	---	---			
Raz	0-4	55-75	15-35	10-15	1.27-1.38	14.00-42.00	0.05-0.10	1.0-2.9	0.3-0.5	.15	.37	1	6	48
	4-12	30-60	18-40	20-30	1.28-1.29	4.00-14.00	0.11-0.19	1.0-5.9	0.1-0.3	.32	.32			
	12-17	30-70	15-40	12-30	1.34-1.50	1.40-4.00	0.07-0.19	0.0-5.9	0.0-0.2	.28	.28			
	17-30				---	0.01-0.42	0.00-0.00	---	---	---	---			
	30-40				---	---	---	---	---	---	---			
571:														
Salhouse	0-5	75-85	5-20	2-8	0.99-1.34	42.00-141.00	0.15-0.17	0.0-2.9	0.1-0.3	.20	.20	5	1	220
	5-42	80-95	0-15	3-10	0.99-1.34	42.00-141.00	0.07-0.12	0.0-2.9	0.1-0.2	.10	.10			
	42-61	10-60	30-65	10-25	0.99-1.40	4.00-42.00	0.10-0.30	3.0-5.9	0.0-0.1	.43	.43			
572:														
Salhouse, strongly alkaline	0-5	75-85	5-20	2-8	0.99-1.34	42.00-141.00	0.15-0.17	0.0-2.9	0.1-0.3	.20	.20	5	1	220
	5-42	80-95	0-15	3-10	0.99-1.34	42.00-141.00	0.07-0.12	0.0-2.9	0.1-0.2	.10	.10			
	42-61	10-60	30-65	10-25	0.99-1.40	4.00-42.00	0.10-0.30	3.0-5.9	0.0-0.1	.43	.43			
573:														
Salhouse	0-5	75-85	5-20	2-8	0.99-1.34	42.00-141.00	0.15-0.17	0.0-2.9	0.1-0.3	.20	.20	5	1	220
	5-42	80-95	0-15	3-10	0.99-1.34	42.00-141.00	0.07-0.12	0.0-2.9	0.1-0.2	.10	.10			
	42-61	10-60	30-65	10-25	0.99-1.40	4.00-42.00	0.10-0.30	3.0-5.9	0.0-0.1	.43	.43			
Tonor	0-3	10-30	60-70	10-20	0.98-1.34	4.00-42.00	0.29-0.32	0.0-2.9	0.2-0.5	.55	.55	5	4	86
	3-11	20-50	40-60	10-20	0.99-1.34	4.00-42.00	0.24-0.32	0.0-2.9	0.1-0.3	.43	.43			
	11-43	25-65	20-50	15-25	0.99-1.34	1.40-14.00	0.13-0.31	1.0-5.9	0.1-0.3	.28	.28			
	43-60	10-30	55-65	15-25	0.99-1.35	1.40-4.00	0.26-0.31	1.0-5.9	0.0-0.2	.55	.55			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
574:														
Seharney	0-3	50-80	5-30	8-18	1.25-1.32	14.00-42.00	0.04-0.09	1.0-2.9	0.4-0.8	.10	.28	1	6	48
	3-11	30-60	10-45	18-27	1.25-1.32	4.00-42.00	0.05-0.13	1.0-2.9	0.2-0.6	.17	.43			
	11-13				---	0.01-0.42	---	---	---	---	---			
	13-23				---	---	---	---	---	---	---			
575:														
Seharney	0-3	50-80	5-30	8-18	1.25-1.32	14.00-42.00	0.07-0.11	1.0-2.9	0.4-0.8	.17	.28	1	5	56
	3-11	30-60	10-45	18-27	1.25-1.32	4.00-42.00	0.05-0.13	1.0-2.9	0.2-0.6	.17	.43			
	11-13				---	0.01-0.42	---	---	---	---	---			
	13-23				---	---	---	---	---	---	---			
Rabbithills	0-3	55-75	15-35	6-15	1.30-1.35	14.00-42.00	0.07-0.11	1.0-2.9	0.2-0.6	.15	.28	1	5	56
	3-12	45-80	10-30	5-16	1.30-1.40	4.00-42.00	0.09-0.13	1.0-2.9	0.2-0.4	.37	.37			
	12-22	55-80	5-30	5-16	1.80-2.00	0.42-1.40	0.00-0.02	1.0-2.9	0.0-0.0	.37	.37			
	22-40	40-80	5-40	0-30	1.30-1.45	14.00-42.00	0.05-0.14	1.0-2.9	0.2-0.4	.43	.43			
	40-60				---	---	---	---	---	---	---			
Enko	0-2	55-80	10-40	5-15	1.20-1.25	14.00-42.00	0.09-0.13	1.0-2.9	0.2-1.0	.20	.20	5	3	86
	2-11	45-70	20-40	10-18	1.34-1.40	14.00-42.00	0.05-0.13	1.0-2.9	0.2-0.5	.20	.20			
	11-35	40-70	20-40	10-18	1.34-1.60	14.00-42.00	0.09-0.13	1.0-2.9	0.2-0.5	.28	.28			
	35-60	40-70	20-40	10-18	1.70-1.80	0.42-4.20	0.04-0.13	1.0-2.9	0.2-0.5	.37	.37			
576:														
Senra	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.17-0.21	0.0-2.9	1.0-3.0	.37	.37	1	2	134
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
577:														
Senra	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.17-0.21	0.0-2.9	1.0-3.0	.37	.37	1	2	134
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
578:														
Senra	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.17-0.21	0.0-2.9	1.0-3.0	.37	.37	1	2	134
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
578:														
Borobey	0-4	50-70	9-30	2-15	1.00-1.35	14.00-42.00	0.08-0.12	0.0-2.9	0.5-1.5	.37	.37	5	2	134
	4-12	75-85	6-20	2-20	1.00-1.35	42.00-141.00	0.08-0.27	0.0-2.9	1.0-3.0	.28	.28			
	12-50	57-87	9-15	4-18	1.00-1.35	1.40-42.00	0.10-0.23	0.0-2.9	0.1-1.0	.37	.37			
	50-68	60-85	12-25	3-18	1.00-1.35	14.00-141.00	0.05-0.23	0.0-2.9	0.1-1.0	.15	.15			
579:														
Senra	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.19-0.25	0.0-2.9	1.0-3.0	.49	.49	1	2	134
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
Dunres	0-4	85-95	2-10	2-8	0.85-1.25	42.00-141.00	0.17-0.21	0.0-2.9	1.0-3.0	.28	.55	1	1	310
	4-8	50-75	5-15	20-35	0.90-1.25	1.40-4.00	0.23-0.32	3.0-5.9	1.0-2.0	.24	.24			
	8-19	10-40	20-35	40-55	1.12-1.39	0.10-0.42	0.10-0.16	6.0-9.0	0.5-1.0	.24	.24			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-56				---	0.01-0.42	0.00-0.00	---	---	---	---			
	56-60				---	---	---	---	---	---	---			
580:														
Senra	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.17-0.21	0.0-2.9	1.0-3.0	.37	.37	1	2	134
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
Goodtack	0-3	75-88	5-20	4-10	1.00-1.35	42.00-141.00	0.16-0.18	1.0-2.9	1.0-3.0	.64	.64	1	1	220
	3-7	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55			
	7-19	50-70	20-30	18-26	1.00-1.35	4.00-42.00	0.18-0.23	1.0-2.9	0.2-1.0	.37	.37			
	19-46				---	0.01-0.42	0.00-0.00	---	---	---	---			
	46-56				---	---	---	---	---	---	---			
581:														
Senra	0-3	50-70	5-25	22-33	0.91-1.29	14.00-42.00	0.17-0.24	0.0-2.9	1.0-3.0	.24	.24	1	4	86
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
581:														
Goodtack	0-3	35-50	30-48	10-25	1.00-1.35	4.00-14.00	0.21-0.27	1.0-2.9	1.0-3.0	.43	.43	1	5	56
	3-7	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55			
	7-19	50-70	20-30	18-26	1.00-1.35	4.00-42.00	0.18-0.23	1.0-2.9	0.2-1.0	.37	.37			
	19-46				---	0.01-0.42	0.00-0.00	---	---	---	---			
	46-56				---	---	---	---	---	---	---			
582:														
Senra	0-3	55-75	15-35	8-18	0.91-1.29	14.00-42.00	0.12-0.19	0.0-2.9	1.0-3.0	.24	.43	1	4	86
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
Goodtack	0-3	30-88	5-20	4-10	1.00-1.35	42.00-141.00	0.09-0.13	1.0-2.9	1.0-3.0	.24	.37	1	1	220
	3-7	55-70	20-35	8-14	1.00-1.35	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.55	.55			
	7-19	50-70	20-30	18-26	1.00-1.35	4.00-42.00	0.18-0.23	1.0-2.9	0.2-1.0	.37	.37			
	19-46				---	0.01-0.42	0.00-0.00	---	---	---	---			
	46-56				---	---	---	---	---	---	---			
Suckerflat	0-8	55-75	15-35	8-15	0.90-1.30	14.00-42.00	0.13-0.19	1.0-2.9	1.0-3.0	.24	.37	1	4	86
	8-18	40-80	10-50	8-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43			
	18-28				---	---	---	---	---	---	---			
583:														
Senra	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.15-0.21	0.0-2.9	1.0-3.0	.28	.49	1	4	86
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
Hayespring	0-3	55-75	15-30	10-16	0.88-1.23	14.00-42.00	0.18-0.22	0.0-2.9	2.0-4.0	.24	.24	2	2	134
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
584:														
Senra, droughty------	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.17-0.21	0.0-2.9	1.0-3.0	.37	.37	1	2	134
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
Hayespring, droughty	0-3	55-75	15-30	10-16	0.88-1.23	14.00-42.00	0.15-0.21	0.0-2.9	2.0-4.0	.20	.37	2	4	86
	3-10	55-75	15-25	11-18	0.88-1.23	14.00-42.00	0.12-0.17	0.0-2.9	2.0-4.0	.10	.24			
	10-17	25-60	20-45	20-32	0.92-1.29	1.40-4.00	0.12-0.21	1.0-5.9	1.0-3.0	.20	.32			
	17-24	25-40	29-40	30-36	0.97-1.34	1.40-4.00	0.18-0.21	3.0-5.9	0.1-0.5	.32	.32			
	24-44				---	0.01-0.42	0.00-0.00	---	---	---	---			
	44-54				---	---	---	---	---	---	---			
585:														
Senra----------------	0-3	60-70	20-25	10-15	0.91-1.29	14.00-42.00	0.15-0.21	0.0-2.9	1.0-3.0	.24	.37	1	4	86
	3-10	35-50	35-55	10-20	0.91-1.29	14.00-42.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43			
	10-15	50-70	10-20	21-28	0.96-1.32	4.00-14.00	0.18-0.24	1.0-5.9	0.5-1.5	.28	.28			
	15-19	30-55	20-35	27-36	0.98-1.33	1.40-4.00	0.20-0.24	1.0-5.9	0.3-0.7	.20	.37			
	19-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
	32-42				---	---	---	---	---	---	---			
Moonbeam-------------	0-3	35-50	38-45	12-20	0.92-1.24	1.40-4.00	0.15-0.22	0.0-2.9	1.0-3.0	.28	.43	1	5	56
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
586:														
Shanahan-------------	0-4	75-90	10-20	0-5	0.78-1.20	42.00-142.00	0.08-0.11	1.0-2.9	0.5-1.0	.02	.02	5	2	134
	4-9	75-90	10-20	0-5	0.78-1.20	42.00-142.00	0.08-0.11	1.0-2.9	0.5-1.0	.15	.15			
	9-38	75-95	0-20	0-15	0.90-1.20	42.00-142.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	38-60	50-70	10-30	10-15	1.34-1.40	14.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.17	.28			
587:														
Shanahan, low landscape position--	0-4	75-90	10-20	0-5	0.78-1.20	42.00-142.00	0.08-0.11	1.0-2.9	0.5-1.0	.02	.02	5	2	134
	4-9	75-90	10-20	0-5	0.78-1.20	42.00-142.00	0.08-0.11	1.0-2.9	0.5-1.0	.15	.15			
	9-38	75-95	0-20	0-15	0.90-1.20	42.00-142.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	38-60	50-70	10-30	10-15	1.34-1.40	14.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.17	.28			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
588:														
Shanahan, north	0-4	75-90	10-20	0-5	0.78-1.20	42.00-142.00	0.08-0.11	1.0-2.9	0.5-1.0	.02	.02	5	2	134
	4-9	75-90	10-20	0-5	0.78-1.20	42.00-142.00	0.08-0.11	1.0-2.9	0.5-1.0	.15	.15			
	9-38	75-95	0-20	0-15	0.90-1.20	42.00-142.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	38-60	50-70	10-30	10-15	1.34-1.40	14.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.17	.28			
Shukash	0-3	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02	4	2	134
	3-10	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02			
	10-37	80-95	0-10	0-5	0.90-1.20	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	37-60	40-70	30-50	10-20	1.00-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.2-0.6	.10	.32			
589:														
Shukash	0-3	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02	4	2	134
	3-10	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02			
	10-37	80-95	0-10	0-5	0.90-1.20	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	37-60	40-70	30-50	10-20	1.00-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.2-0.6	.10	.32			
590:														
Shukash, cool	0-3	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02	4	2	134
	3-10	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02			
	10-37	80-95	0-10	0-5	0.90-1.20	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	37-60	40-70	30-50	10-20	1.00-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.2-0.6	.10	.32			
591:														
Shukash, north	0-3	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02	4	2	134
	3-10	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02			
	10-37	80-95	0-10	0-5	0.90-1.20	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	37-60	40-70	30-50	10-20	1.00-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.2-0.6	.10	.32			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
592:														
Shukash, south	0-3	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02	4	2	134
	3-10	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02			
	10-37	80-95	0-10	0-5	0.90-1.20	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	37-60	40-70	30-50	10-20	1.00-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.2-0.6	.10	.32			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
593:														
Shukash	0-3	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02	4	2	134
	3-10	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02			
	10-37	80-95	0-10	0-5	0.90-1.20	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	37-60	40-70	30-50	10-20	1.00-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.2-0.6	.10	.32			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
594:														
Shukash	0-3	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02	4	2	134
	3-10	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02			
	10-37	80-95	0-10	0-5	0.90-1.20	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	37-60	40-70	30-50	10-20	1.00-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.2-0.6	.10	.32			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
595:														
Shukash	0-3	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02	4	2	134
	3-10	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02			
	10-37	80-95	0-10	0-5	0.90-1.20	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	37-60	40-70	30-50	10-20	1.00-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.2-0.6	.10	.32			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
596:														
Shukash	0-3	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02	4	2	134
	3-10	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02			
	10-37	80-95	0-10	0-5	0.90-1.20	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	37-60	40-70	30-50	10-20	1.00-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.2-0.6	.10	.32			
Shanahan	0-4	75-90	10-20	0-5	0.78-1.20	42.00-142.00	0.08-0.11	1.0-2.9	0.5-1.0	.02	.02	5	2	134
	4-9	75-90	10-20	0-5	0.78-1.20	42.00-142.00	0.08-0.11	1.0-2.9	0.5-1.0	.15	.15			
	9-38	75-95	0-20	0-15	0.90-1.20	42.00-142.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	38-60	50-70	10-30	10-15	1.34-1.40	14.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.17	.28			
597:														
Shukash	0-3	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02	4	2	134
	3-10	80-85	0-10	0-5	0.78-1.20	14.00-42.00	0.08-0.11	1.0-2.9	0.2-0.8	.02	.02			
	10-37	80-95	0-10	0-5	0.90-1.20	14.00-42.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	37-60	40-70	30-50	10-20	1.00-1.35	4.00-42.00	0.03-0.08	1.0-2.9	0.2-0.6	.10	.32			
Wanoga	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-20	5-10	0.90-1.30	42.00-141.00	0.06-0.08	1.0-2.9	1.0-3.0	.10	.15			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
598:														
Sisters	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-10	80-85	5-20	2-10	0.66-1.12	42.00-141.00	0.09-0.12	1.0-2.9	2.0-7.0	.05	.05			
	10-17	80-95	5-15	2-10	0.90-1.20	42.00-141.00	0.06-0.09	1.0-2.9	0.2-2.0	.02	.02			
	17-33	80-95	5-15	2-10	0.90-1.20	42.00-141.00	0.06-0.09	1.0-2.9	0.2-2.0	.05	.05			
	33-47	30-45	25-45	10-30	1.00-1.35	1.40-14.00	0.19-0.24	1.0-2.9	0.2-0.5	.43	.43			
	47-51				---	---	---	---	---	---	---			
Wanoga	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-20	5-10	0.90-1.30	42.00-141.00	0.06-0.08	1.0-2.9	1.0-3.0	.10	.15			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
599:														
Sliptrack	0-3	60-70	20-25	12-17	0.88-1.24	14.00-42.00	0.19-0.25	0.0-2.9	2.0-4.0	.37	.37	2	2	134
	3-11	60-70	19-20	12-18	0.88-1.24	14.00-42.00	0.17-0.23	0.0-2.9	2.0-4.0	.28	.28			
	11-16	50-70	5-16	23-35	0.91-1.29	4.00-14.00	0.18-0.24	1.0-5.9	1.0-3.0	.28	.28			
	16-22	25-55	15-35	30-38	0.97-1.32	1.40-4.00	0.18-0.32	3.0-5.9	0.5-1.0	.32	.32			
	22-60				---	0.01-0.42	0.00-0.00	---	---	---	---			
Moonbeam	0-3	55-70	15-35	5-15	0.92-1.24	4.00-14.00	0.12-0.19	0.0-2.9	1.0-3.0	.20	.43	1	4	86
	3-8	55-75	7-20	16-25	0.94-1.24	1.40-14.00	0.15-0.21	1.0-2.9	1.0-2.0	.17	.28			
	8-14	20-40	26-35	35-50	1.13-1.46	0.42-4.00	0.15-0.21	3.0-8.9	0.5-1.5	.24	.24			
	14-18	15-40	20-35	40-50	1.18-1.44	0.42-1.40	0.11-0.16	3.0-8.9	0.1-0.5	.28	.28			
	18-27				---	0.01-0.42	0.00-0.00	---	---	---	---			
	27-37				---	---	---	---	---	---	---			
600:														
Sliptrack	0-3	60-70	20-25	12-17	0.88-1.24	14.00-42.00	0.15-0.20	0.0-2.9	2.0-4.0	.17	.28	2	4	86
	3-11	60-70	19-20	12-18	0.88-1.24	14.00-42.00	0.17-0.23	0.0-2.9	2.0-4.0	.28	.28			
	11-16	50-70	5-16	23-35	0.91-1.29	4.00-14.00	0.18-0.24	1.0-5.9	1.0-3.0	.28	.28			
	16-22	25-55	15-35	30-38	0.97-1.32	1.40-4.00	0.18-0.32	3.0-5.9	0.5-1.0	.32	.32			
	22-60				---	0.01-0.42	0.00-0.00	---	---	---	---			
Oatmanflat	0-3	40-50	30-40	12-20	1.00-1.35	14.00-42.00	0.16-0.18	1.0-2.9	1.0-3.0	.32	.32	3	4	86
	3-12	50-75	10-30	10-25	1.00-1.35	4.00-42.00	0.13-0.18	1.0-2.9	0.5-1.5	.24	.24			
	12-28	55-75	10-35	8-20	1.00-1.35	14.00-42.00	0.22-0.25	1.0-2.9	0.2-0.5	.28	.28			
	28-44	40-65	15-40	18-35	1.00-1.35	4.00-42.00	0.14-0.23	1.0-5.9	0.2-0.5	.28	.28			
	44-53	40-65	15-40	18-35	1.00-1.35	4.00-42.00	0.14-0.23	1.0-5.9	0.2-0.5	.24	.37			
	53-64				---	0.01-0.42	0.00-0.00	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
601:														
Snakepit	0-3	80-85	5-15	4-6	1.36-1.57	42.00-141.00	0.05-0.08	1.0-2.9	1.0-3.0	.10	.10	2	2	134
	3-19	80-85	5-15	6-8	1.36-1.57	42.00-141.00	0.05-0.08	1.0-2.9	1.0-3.0	.10	.10			
	19-30	60-85	5-30	6-10	1.40-1.65	42.00-141.00	0.09-0.13	1.0-2.9	0.2-0.6	.32	.32			
	30-33	60-85	5-30	6-10	1.40-1.65	42.00-141.00	0.09-0.13	1.0-2.9	0.2-0.6	.32	.32			
	33-42				---	0.01-0.42	0.00-0.00	---	---	---	---			
	42-63	60-85	5-30	6-12	1.36-1.57	42.00-141.00	0.00-0.00	1.0-2.9	0.2-0.6	.24	.24			
602:														
Southcat	0-4	80-85	10-16	4-8	1.60-1.73	14.00-42.00	0.02-0.06	0.0-2.9	0.2-0.5	.15	.28	5	2	134
	4-10	60-70	18-25	5-18	1.28-1.34	14.00-42.00	0.05-0.13	0.0-2.9	0.1-0.3	.20	.20			
	10-26	60-90	5-35	2-12	1.39-1.85	14.00-42.00	0.02-0.12	0.0-2.9	0.0-0.2	.15	.28			
	26-62	70-95	5-25	2-5	1.29-1.75	42.00-141.00	0.00-0.06	0.0-2.9	0.0-0.2	.02	.02			
603:														
Southcat	0-4	80-85	10-16	4-8	1.60-1.73	14.00-42.00	0.02-0.06	0.0-2.9	0.2-0.5	.15	.28	5	2	134
	4-10	60-70	18-25	5-18	1.28-1.34	14.00-42.00	0.05-0.13	0.0-2.9	0.1-0.3	.20	.20			
	10-26	60-90	5-35	2-12	1.39-1.85	14.00-42.00	0.02-0.12	0.0-2.9	0.0-0.2	.15	.28			
	26-62	70-95	5-25	2-5	1.29-1.75	42.00-141.00	0.00-0.06	0.0-2.9	0.0-0.2	.02	.02			
Kewake	0-4	75-88	4-20	2-10	0.98-1.35	14.00-42.00	0.09-0.11	0.0-2.9	0.1-0.5	.28	.28	5	1	220
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
604:														
Southcat	0-4	90-97	2-8	2-8	1.60-1.73	14.00-42.00	0.04-0.06	1.0-2.9	0.2-0.5	.10	.10	5	1	250
	4-10	60-70	18-25	5-18	1.28-1.34	14.00-42.00	0.05-0.13	0.0-2.9	0.1-0.3	.20	.20			
	10-26	60-90	5-35	2-12	1.39-1.85	14.00-42.00	0.02-0.12	0.0-2.9	0.0-0.2	.15	.28			
	26-62	70-95	5-25	2-5	1.29-1.75	42.00-141.00	0.00-0.06	0.0-2.9	0.0-0.2	.02	.02			
Playas	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	---	4	86
	6-60			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
605:														
Spiderhole, very cobbly loamy sand surface	0-3	75-85	9-15	4-10	1.60-1.70	42.00-141.00	0.03-0.05	1.0-2.9	0.2-0.8	.05	.20	1	3	86
	3-6	60-80	4-15	6-16	1.35-1.45	14.00-42.00	0.06-0.10	1.0-2.9	0.2-0.6	.17	.32			
	6-10	50-70	10-20	14-28	1.25-1.35	14.00-42.00	0.10-0.15	1.0-2.9	0.2-0.4	.10	.28			
	10-21				---	0.01-0.42	0.00-0.00	---	---	---	---			
	21-24	75-85	5-15	5-10	1.60-1.70	42.00-141.00	0.00-0.00	1.0-2.9	0.2-0.4	.24	.24			
	24-34				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
605:														
Spiderhole, very gravelly loamy sand surface	0-3	75-85	5-15	4-8	1.60-1.70	42.00-141.00	0.03-0.05	1.0-2.9	0.2-0.8	.10	.24	1	3	86
	3-6	60-80	4-15	6-16	1.35-1.45	14.00-42.00	0.06-0.10	1.0-2.9	0.2-0.6	.17	.32			
	6-10	50-70	10-20	14-28	1.25-1.35	14.00-42.00	0.10-0.15	1.0-2.9	0.2-0.4	.10	.28			
	10-21				---	0.01-0.42	0.00-0.00	---	---	---	---			
	21-24	75-85	5-15	5-10	1.60-1.70	42.00-141.00	0.00-0.00	1.0-2.9	0.2-0.4	.24	.24			
	24-34				---	---	---	---	---	---	---			
606:														
Stampede	0-2	55-70	15-25	15-20	1.14-1.34	4.00-14.00	0.10-0.13	0.0-2.9	1.0-3.0	.15	.24	2	5	56
	2-9	40-70	10-30	21-30	1.03-1.34	1.40-4.00	0.12-0.14	1.0-5.9	1.0-3.0	.24	.24			
	9-22	20-40	25-35	35-50	1.13-1.46	0.42-1.40	0.14-0.19	3.0-8.9	0.5-1.5	.32	.32			
	22-32				---	0.01-0.42	0.00-0.00	---	---	---	---			
607:														
Steiger	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-4	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	2.0-7.0	.10	.10			
	4-12	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	1.0-2.0	.17	.17			
	12-45	75-95	5-20	2-5	0.77-1.16	42.00-141.00	0.02-0.09	1.0-2.9	0.2-0.6	.02	.02			
	45-60	40-70	20-40	5-18	1.16-1.20	4.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.15	.32			
608:														
Steiger, cool	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-4	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	2.0-7.0	.10	.10			
	4-12	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	1.0-2.0	.17	.17			
	12-45	75-95	5-20	2-5	0.77-1.16	42.00-141.00	0.02-0.09	1.0-2.9	0.2-0.6	.02	.02			
	45-60	40-70	20-40	5-18	1.16-1.20	4.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.15	.32			
609:														
Steiger	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-4	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	2.0-7.0	.10	.10			
	4-12	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	1.0-2.0	.17	.17			
	12-45	75-95	5-20	2-5	0.77-1.16	42.00-141.00	0.02-0.09	1.0-2.9	0.2-0.6	.02	.02			
	45-60	40-70	20-40	5-18	1.16-1.20	4.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.15	.32			
610:														
Steiger, north	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-4	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	2.0-7.0	.10	.10			
	4-12	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	1.0-2.0	.17	.17			
	12-45	75-95	5-20	2-5	0.77-1.16	42.00-141.00	0.02-0.09	1.0-2.9	0.2-0.6	.02	.02			
	45-60	40-70	20-40	5-18	1.16-1.20	4.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.15	.32			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
611:														
Steiger, south	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-4	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	2.0-7.0	.10	.10			
	4-12	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	1.0-2.0	.17	.17			
	12-45	75-95	5-20	2-5	0.77-1.16	42.00-141.00	0.02-0.09	1.0-2.9	0.2-0.6	.02	.02			
	45-60	40-70	20-40	5-18	1.16-1.20	4.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.15	.32			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
612:														
Suckerflat	0-8	75-85	5-20	4-10	0.90-1.30	14.00-42.00	0.14-0.18	1.0-2.9	1.0-3.0	.37	.37	1	1	220
	8-18	40-80	10-50	8-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43			
	18-28				---	---	---	---	---	---	---			
613:														
Suckerflat	0-8	75-85	5-20	4-10	0.90-1.30	14.00-42.00	0.07-0.12	1.0-2.9	1.0-3.0	.32	.32	1	1	220
	8-18	40-80	10-50	8-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43			
	18-28				---	---	---	---	---	---	---			
614:														
Suckerflat	0-8	40-50	30-50	12-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43	1	5	56
	8-18	40-80	10-50	8-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43			
	18-28				---	---	---	---	---	---	---			
615:														
Suckerflat, north	0-8	75-85	5-20	4-10	0.90-1.30	14.00-42.00	0.07-0.12	1.0-2.9	1.0-3.0	.32	.32	1	1	220
	8-18	40-80	10-50	8-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43			
	18-28				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
616:														
Suckerflat, south	0-8	75-85	5-20	4-10	0.90-1.30	14.00-42.00	0.07-0.12	1.0-2.9	1.0-3.0	.32	.32	1	1	220
	8-18	40-80	10-50	8-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43			
	18-28				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
617:														
Suckerflat	0-8	75-85	5-20	4-10	0.90-1.30	14.00-42.00	0.07-0.12	1.0-2.9	1.0-3.0	.32	.32	1	1	220
	8-18	40-80	10-50	8-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43			
	18-28				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
618:														
Suckerflat-----------	0-8	40-50	30-50	12-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43	1	5	56
	8-18	40-80	10-50	8-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43			
	18-28				---	---	---	---	---	---	---			
Weglike--------------	0-3	75-85	5-20	4-10	0.91-1.19	14.00-42.00	0.08-0.12	1.0-2.9	2.0-3.0	.15	.15	2	1	220
	3-12	75-80	15-17	5-10	0.91-1.24	14.00-42.00	0.08-0.20	1.0-2.9	1.0-3.0	.24	.24			
	12-22	30-60	20-40	18-30	1.27-1.44	4.00-14.00	0.07-0.18	1.0-5.9	0.1-0.5	.20	.43			
	22-23	25-50	30-45	18-30	1.28-1.44	4.00-14.00	0.05-0.14	1.0-2.9	0.1-0.3	.05	.43			
	23-33				---	---	---	---	---	---	---			
619:														
Silverash------------	0-2	50-70	20-35	10-18	0.95-1.35	14.00-42.00	0.20-0.23	1.0-2.9	0.5-1.0	.37	.37	5	2	134
	2-8	30-50	30-60	10-18	1.00-1.35	14.00-42.00	0.24-0.27	1.0-2.9	0.2-0.8	.43	.43			
	8-21	20-70	20-40	35-50	1.25-1.50	0.42-1.40	0.14-0.16	6.0-9.0	0.2-0.6	.24	.24			
	21-62	30-70	10-30	18-35	1.30-1.60	1.40-42.00	0.14-0.16	1.0-5.9	0.2-0.6	.20	.20			
620:														
Swalesilver----------	0-4	30-50	30-40	15-25	1.25-1.30	4.00-14.00	0.16-0.18	1.0-2.9	0.5-1.0	.43	.43	5	6	48
	4-16	10-40	20-50	35-65	1.05-1.50	0.01-1.40	0.14-0.16	6.0-9.0	0.4-0.8	.24	.24			
	16-60	10-50	30-50	22-40	1.28-1.30	0.42-4.00	0.16-0.18	3.0-9.0	0.2-0.6	.37	.37			
621:														
Swalesilver----------	0-4	10-30	55-80	15-25	1.25-1.30	4.00-14.00	0.19-0.21	1.0-2.9	0.5-1.0	.55	.55	5	6	48
	4-16	10-40	20-50	35-65	1.05-1.50	0.01-1.40	0.14-0.16	6.0-9.0	0.4-0.8	.24	.24			
	16-60	10-50	30-50	22-40	1.28-1.30	0.42-4.00	0.16-0.18	3.0-9.0	0.2-0.6	.37	.37			
622:														
Teguro---------------	0-2	35-50	40-50	10-16	1.10-1.27	4.00-14.00	0.11-0.15	0.0-2.9	2.0-4.0	.20	.37	1	6	48
	2-8	35-50	40-50	10-18	1.14-1.36	14.00-42.00	0.11-0.15	0.0-2.9	1.0-3.0	.20	.37			
	8-15	25-45	30-40	25-35	1.19-1.26	1.40-4.00	0.10-0.19	1.0-5.9	0.8-2.0	.32	.32			
	15-25				---	---	---	---	---	---	---			
623:														
Teguro---------------	0-2	35-50	40-50	10-16	1.10-1.27	4.00-14.00	0.11-0.15	0.0-2.9	2.0-4.0	.20	.37	1	6	48
	2-8	35-50	40-50	10-18	1.14-1.36	14.00-42.00	0.11-0.15	0.0-2.9	1.0-3.0	.20	.37			
	8-15	25-45	30-40	25-35	1.19-1.26	1.40-4.00	0.10-0.19	1.0-5.9	0.8-2.0	.32	.32			
	15-25				---	---	---	---	---	---	---			
624:														
Thompsoncabin, extremely bouldery--	0-3	55-75	15-25	10-18	1.36-1.39	14.00-42.00	0.01-0.04	0.0-2.9	0.2-0.5	.02	.32	1	8	0
	3-14	25-60	15-40	25-35	1.28-1.45	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.3	.10	.37			
	14-24				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
624:														
Thompsoncabin	0-3	55-75	15-25	10-18	1.36-1.39	14.00-42.00	0.01-0.05	0.0-2.9	0.2-0.5	.05	.37	1	8	0
	3-14	25-60	15-40	25-35	1.28-1.45	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.3	.10	.37			
	14-24				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
625:														
Thompsoncabin	0-3	55-75	15-25	10-18	1.36-1.39	14.00-42.00	0.01-0.04	0.0-2.9	0.2-0.5	.10	.32	1	6	48
	3-14	25-60	15-40	25-35	1.28-1.45	1.40-4.00	0.04-0.07	0.0-2.9	0.0-0.3	.10	.37			
	14-24				---	---	---	---	---	---	---			
Wildhill	0-2	30-50	30-45	10-22	1.25-1.30	4.00-14.00	0.05-0.12	1.0-2.9	0.3-0.5	.10	.37	2	8	0
	2-9	60-70	20-20	12-18	1.27-1.38	14.00-42.00	0.05-0.10	0.0-2.9	0.3-0.5	.10	.28			
	9-14	30-70	10-35	20-35	1.27-1.44	1.40-4.00	0.04-0.14	0.0-5.9	0.1-0.5	.10	.28			
	14-25	35-70	10-35	20-30	1.29-1.30	4.00-14.00	0.04-0.14	0.0-2.9	0.0-0.2	.05	.24			
	25-35				---	---	---	---	---	---	---			
626:														
Thornlake	0-7	55-80	10-20	8-15	0.99-1.34	14.00-42.00	0.17-0.20	1.0-2.9	0.2-0.4	.24	.24	5	2	134
	7-25	20-50	30-60	15-25	0.99-1.34	4.00-14.00	0.23-0.31	1.0-5.9	0.1-0.3	.32	.32			
	25-61	20-80	15-55	5-25	0.99-1.35	4.00-42.00	0.07-0.31	1.0-2.9	0.0-0.2	.28	.28			
627:														
Thornlake, nonsodic surface	0-7	55-80	10-20	8-15	0.99-1.34	14.00-42.00	0.17-0.20	1.0-2.9	0.2-0.4	.24	.24	5	2	134
	7-25	20-50	30-60	15-25	0.99-1.34	4.00-14.00	0.23-0.31	1.0-5.9	0.1-0.3	.32	.32			
	25-61	20-80	15-55	5-25	0.99-1.35	4.00-42.00	0.07-0.31	1.0-2.9	0.0-0.2	.28	.28			
628:														
Thornlake, strongly alkaline	0-7	55-80	10-20	8-15	0.99-1.34	14.00-42.00	0.17-0.20	1.0-2.9	0.2-0.4	.24	.24	5	2	134
	7-25	20-50	30-60	15-25	0.99-1.34	4.00-14.00	0.23-0.31	1.0-5.9	0.1-0.3	.32	.32			
	25-61	20-80	15-55	5-25	0.99-1.35	4.00-42.00	0.07-0.31	1.0-2.9	0.0-0.2	.28	.28			
Thornlake, moderately alkaline	0-7	10-35	55-75	10-25	0.99-1.34	4.00-14.00	0.25-0.31	1.0-2.9	0.2-0.4	.49	.49	5	5	56
	7-25	20-50	30-60	15-25	0.99-1.34	4.00-14.00	0.23-0.31	1.0-5.9	0.1-0.3	.32	.32			
	25-61	20-80	15-55	5-25	0.99-1.35	4.00-42.00	0.07-0.31	1.0-2.9	0.0-0.2	.28	.28			
629:														
Thornlake	0-5	80-90	5-15	5-10	1.00-1.35	42.00-141.00	0.06-0.11	1.0-2.9	0.2-0.6	.10	.15	5	1	220
	5-59	60-85	5-25	5-15	1.00-1.35	14.00-141.00	0.11-0.17	1.0-2.9	0.2-0.6	.15	.20			
	59-65	60-85	5-25	5-15	1.00-1.35	14.00-141.00	0.17-0.23	1.0-2.9	0.2-0.6	.28	.28			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
629:														
Catlow---------------	0-3	75-85	5-20	2-10	1.51-1.56	42.00-141.00	0.06-0.09	0.0-2.9	0.2-0.5	.10	.20	5	2	134
	3-21	55-75	13-20	10-25	1.20-1.30	14.00-42.00	0.02-0.10	0.0-2.9	0.1-0.4	.05	.28			
	21-30	55-85	10-30	5-15	1.40-1.55	1.40-4.20	0.00-0.08	0.0-2.9	0.1-0.4	.05	.28			
	30-60	55-90	12-35	3-10	1.20-1.40	14.00-141.00	0.00-0.07	0.0-2.9	0.1-0.3	.05	.24			
Kewake---------------	0-4	90-95	0-5	2-5	0.98-1.35	42.00-141.00	0.02-0.07	0.0-2.9	0.1-0.5	.02	.02	5	1	220
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
630:														
Thornlake------------	0-5	80-90	5-15	5-10	1.00-1.35	42.00-141.00	0.06-0.11	1.0-2.9	0.2-0.6	.10	.15	5	1	220
	5-59	60-85	5-25	5-15	1.00-1.35	14.00-141.00	0.11-0.17	1.0-2.9	0.2-0.6	.15	.20			
	59-65	60-85	5-25	5-15	1.00-1.35	14.00-141.00	0.17-0.23	1.0-2.9	0.2-0.6	.28	.28			
Kewake---------------	0-4	75-88	4-20	2-10	0.98-1.35	14.00-42.00	0.06-0.08	0.0-2.9	0.1-0.5	.20	.20	5	1	220
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
631:														
Thornlake------------	0-7	55-80	10-20	8-15	0.99-1.34	14.00-42.00	0.17-0.20	1.0-2.9	0.2-0.4	.24	.24	5	2	134
	7-25	20-50	30-60	15-25	0.99-1.34	4.00-14.00	0.23-0.31	1.0-5.9	0.1-0.3	.32	.32			
	25-61	20-80	15-55	5-25	0.99-1.35	4.00-42.00	0.07-0.31	1.0-2.9	0.0-0.2	.28	.28			
Morehouse------------	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
632:														
Thornlake------------	0-7	55-80	10-20	8-15	0.99-1.34	14.00-42.00	0.17-0.20	1.0-2.9	0.2-0.4	.24	.24	5	2	134
	7-25	20-50	30-60	15-25	0.99-1.34	4.00-14.00	0.23-0.31	1.0-5.9	0.1-0.3	.32	.32			
	25-61	20-80	15-55	5-25	0.99-1.35	4.00-42.00	0.07-0.31	1.0-2.9	0.0-0.2	.28	.28			
Salhouse-------------	0-5	75-85	5-20	2-8	0.99-1.34	42.00-141.00	0.09-0.12	0.0-2.9	0.1-0.3	.15	.15	5	1	220
	5-42	80-95	0-15	3-10	0.99-1.34	42.00-141.00	0.07-0.12	0.0-2.9	0.1-0.2	.10	.10			
	42-61	10-60	30-65	10-25	0.99-1.40	4.00-42.00	0.10-0.30	3.0-5.9	0.0-0.1	.43	.43			
633:														
Thornlake, dunes-----	0-7	10-35	55-75	10-25	0.99-1.34	4.00-14.00	0.25-0.31	1.0-2.9	0.2-0.4	.49	.49	5	5	56
	7-25	20-50	30-60	15-25	0.99-1.34	4.00-14.00	0.23-0.31	1.0-5.9	0.1-0.3	.32	.32			
	25-61	20-80	15-55	5-25	0.99-1.35	4.00-42.00	0.07-0.31	1.0-2.9	0.0-0.2	.28	.28			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
633:														
Salhouse, dunes	0-5	75-85	5-20	2-8	0.99-1.34	42.00-141.00	0.15-0.17	0.0-2.9	0.1-0.3	.20	.20	5	1	220
	5-42	80-95	0-15	3-10	0.99-1.34	42.00-141.00	0.07-0.12	0.0-2.9	0.1-0.2	.10	.10			
	42-61	10-60	30-65	10-25	0.99-1.40	4.00-42.00	0.10-0.30	3.0-5.9	0.0-0.1	.43	.43			
634:														
Thornlake	0-7	55-80	10-20	8-15	0.99-1.34	14.00-42.00	0.17-0.20	1.0-2.9	0.2-0.4	.24	.24	5	2	134
	7-25	20-50	30-60	15-25	0.99-1.34	4.00-14.00	0.23-0.31	1.0-5.9	0.1-0.3	.32	.32			
	25-61	20-80	15-55	5-25	0.99-1.35	4.00-42.00	0.07-0.31	1.0-2.9	0.0-0.2	.28	.28			
Salhouse	0-5	75-85	5-20	2-8	0.99-1.34	42.00-141.00	0.15-0.17	0.0-2.9	0.1-0.3	.20	.20	5	1	220
	5-42	80-95	0-15	3-10	0.99-1.34	42.00-141.00	0.07-0.12	0.0-2.9	0.1-0.2	.10	.10			
	42-61	10-60	30-65	10-25	0.99-1.40	4.00-42.00	0.10-0.30	3.0-5.9	0.0-0.1	.43	.43			
Fossilake	0-1	10-40	55-75	4-20	1.00-1.35	4.00-42.00	0.04-0.09	0.0-2.9	0.1-0.5	.49	.49	5	4	86
	1-3	65-75	17-29	8-16	1.00-1.35	4.00-14.00	0.01-0.06	0.0-2.9	0.1-0.4	.49	.49			
	3-15	15-50	15-69	10-26	1.00-1.35	4.00-14.00	0.02-0.16	0.0-5.9	0.0-0.3	.49	.49			
	15-31	30-88	4-46	8-24	1.00-1.35	4.00-141.00	0.05-0.24	0.0-5.9	0.0-0.3	.32	.32			
	31-43	25-45	31-40	24-35	1.00-1.35	1.40-14.00	0.06-0.24	3.0-5.9	0.0-0.2	.37	.37			
	43-66	15-50	32-68	18-27	1.00-1.35	4.00-14.00	0.06-0.27	3.0-5.9	0.0-0.1	.49	.49			
635:														
Teguro	0-2	35-50	40-50	10-16	1.10-1.27	4.00-14.00	0.16-0.18	0.0-2.9	2.0-4.0	.37	.37	1	5	56
	2-8	35-50	40-50	10-18	1.14-1.36	14.00-42.00	0.11-0.15	0.0-2.9	1.0-3.0	.20	.37			
	8-15	25-45	30-40	25-35	1.19-1.26	1.40-4.00	0.10-0.19	1.0-5.9	0.8-2.0	.32	.32			
	15-25				---	---	---	---	---	---	---			
Carryback	0-3	30-50	30-45	15-22	1.30-1.45	4.23-14.11	0.07-0.10	3.0-5.9	1.0-3.0	.15	.37	2	8	0
	3-7	5-40	30-65	20-35	1.30-1.50	4.00-14.00	0.12-0.16	3.0-5.9	1.0-3.0	.43	.43			
	7-11	10-40	25-50	40-60	1.40-1.60	0.42-1.41	0.12-0.16	6.0-9.0	0.5-1.0	.24	.24			
	11-17	10-40	25-60	40-60	1.40-1.60	0.42-1.40	0.12-0.16	6.0-9.0	0.2-1.0	.24	.24			
	17-24	10-40	10-60	40-60	1.40-1.60	0.42-1.40	0.12-0.16	6.0-9.0	0.2-1.0	.24	.24			
	24-34				---	---	---	---	---	---	---			
636:														
Toll	0-15	75-80	12-18	3-10	1.43-1.50	42.00-141.00	0.05-0.07	1.0-2.9	0.2-0.6	.10	.15	5	2	134
	15-40	80-95	5-15	3-10	1.43-1.50	42.00-141.00	0.05-0.08	1.0-2.9	0.2-0.6	.20	.20			
	40-60	80-95	5-15	2-10	1.43-1.50	42.00-141.00	0.03-0.06	1.0-2.9	0.2-0.6	.05	.10			
637:														
Toll	0-15	80-85	5-15	3-10	1.43-1.50	42.00-141.00	0.07-0.09	1.0-2.9	0.2-0.6	.15	.15	5	2	134
	15-40	80-95	5-15	3-10	1.43-1.50	42.00-141.00	0.05-0.08	1.0-2.9	0.2-0.6	.20	.20			
	40-60	80-95	5-15	2-10	1.43-1.50	42.00-141.00	0.03-0.06	1.0-2.9	0.2-0.6	.05	.10			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
637:														
Nevador	0-4	60-70	20-25	8-15	1.27-1.38	14.00-42.00	0.09-0.13	0.0-2.9	0.3-0.5	.32	.32	3	3	86
	4-25	25-70	10-40	20-35	1.27-1.29	1.40-4.00	0.12-0.21	3.0-5.9	0.3-0.5	.28	.28			
	25-30	80-85	10-30	5-15	1.28-1.39	14.00-42.00	0.00-0.13	0.0-2.9	0.1-0.3	.02	.20			
	30-60	80-85	15-16	2-6	1.48-1.59	42.00-141.00	0.05-0.11	0.0-2.9	0.1-0.3	.24	.24			
638:														
Tonor	0-3	10-30	60-70	10-20	0.98-1.34	4.00-42.00	0.29-0.32	0.0-2.9	0.2-0.5	.55	.55	5	4	86
	3-11	20-50	40-60	10-20	0.99-1.34	4.00-42.00	0.24-0.32	0.0-2.9	0.1-0.3	.43	.43			
	11-43	25-65	20-50	15-25	0.99-1.34	1.40-14.00	0.13-0.31	1.0-5.9	0.1-0.3	.28	.28			
	43-60	10-30	55-65	15-25	0.99-1.35	1.40-4.00	0.26-0.31	1.0-5.9	0.0-0.2	.55	.55			
639:														
Tuffcabin	0-5	50-70	10-30	10-15	0.95-1.30	14.00-42.00	0.17-0.20	1.0-2.9	1.0-2.0	.24	.24	4	2	134
	5-30	40-70	10-40	12-20	0.95-1.35	4.00-42.00	0.17-0.20	1.0-2.9	0.6-2.0	.24	.24			
	30-46	25-45	25-45	20-35	1.00-1.35	1.40-14.00	0.29-0.32	3.0-5.9	0.2-0.6	.43	.43			
	46-54				---	0.01-0.42	0.00-0.00	---	---	---	---			
	54-62	40-70	10-50	5-20	1.20-1.35	14.00-42.00	0.00-0.00	1.0-2.9	0.2-0.6	.49	.49			
640:														
Turpin	0-3	50-70	10-40	5-18	1.25-1.30	14.00-42.00	0.13-0.15	1.0-2.9	0.4-1.0	.37	.37	5	3	86
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
641:														
Turpin	0-3	50-70	10-40	5-18	1.25-1.30	14.00-42.00	0.11-0.15	1.0-2.9	0.4-1.0	.49	.49	5	3	86
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
642:														
Turpin	0-3	30-50	30-45	10-25	1.25-1.30	4.00-14.00	0.16-0.18	1.0-2.9	0.4-1.0	.37	.37	5	6	48
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
Boravall	0-2	25-40	20-45	27-35	1.30-1.38	1.40-4.00	0.06-0.08	3.0-5.9	0.4-1.4	.32	.32	4	6	48
	2-6	22-40	20-45	27-35	1.34-1.40	1.40-4.00	0.06-0.08	3.0-5.9	0.2-1.1	.37	.37			
	6-17	10-40	30-60	27-50	1.34-1.40	1.40-4.00	0.06-0.20	3.0-5.9	0.2-0.4	.37	.37			
	17-31	10-40	20-60	27-50	1.25-1.50	1.40-4.00	0.17-0.20	3.0-5.9	0.2-0.4	.28	.28			
	31-42	10-40	20-60	27-50	1.25-1.50	1.40-4.00	0.17-0.20	3.0-5.9	0.2-0.4	.28	.28			
	42-54	10-40	20-60	27-50	1.16-1.40	0.42-1.40	0.13-0.15	6.0-8.9	0.2-0.4	.28	.28			
	54-64	10-40	20-60	27-50	1.16-1.40	0.42-1.40	0.13-0.15	6.0-8.9	0.2-0.4	.28	.28			
Playas	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	5	4	86
	6-60			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
643:														
Turpin	0-3	50-70	10-40	5-18	1.25-1.30	14.00-42.00	0.13-0.15	1.0-2.9	0.4-1.0	.37	.37	5	3	86
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
Kewake	0-4	75-88	4-20	2-10	0.98-1.35	14.00-42.00	0.09-0.11	0.0-2.9	0.1-0.5	.28	.28	5	1	220
	4-18	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	18-25	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.02-0.11	0.0-2.9	0.0-0.3	.20	.20			
	25-47	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
	47-60	80-95	0-15	2-5	0.98-1.35	14.00-42.00	0.00-0.12	0.0-2.9	0.0-0.3	.20	.20			
Playas	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	5	4	86
	6-60			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
644:														
Turpin	0-3	30-50	30-45	10-25	1.25-1.30	4.00-14.00	0.16-0.18	1.0-2.9	0.4-1.0	.37	.37	5	6	48
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
Playas	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	5	4	86
	6-60			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
645:														
Turpin, saline	0-3	30-50	30-45	10-25	1.25-1.30	4.00-14.00	0.16-0.18	1.0-2.9	0.4-1.0	.37	.37	5	6	48
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
Playas, saline	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	5	4	86
	6-60			35-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
646:														
Turpin, sodic	0-3	30-50	30-45	10-25	1.25-1.30	4.00-14.00	0.16-0.18	1.0-2.9	0.4-1.0	.37	.37	5	6	48
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
Playas, sodic	0-6			30-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---	---	4	86
	6-60			35-70	---	0.01-0.42	0.02-0.04	6.0-8.9	0.0-0.1	---	---			
647:														
Turpin	0-3	50-70	10-40	5-18	1.25-1.30	14.00-42.00	0.11-0.15	1.0-2.9	0.4-1.0	.49	.49	5	3	86
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
647:														
Rabbitcreek	0-3	30-50	35-45	15-25	1.27-1.39	14.00-42.00	0.08-0.12	0.0-2.9	0.2-0.5	.15	.32	5	8	0
	3-7	30-50	35-45	15-25	1.27-1.39	14.00-42.00	0.14-0.18	1.0-5.9	0.2-0.5	.43	.43			
	7-14	25-50	30-45	18-30	1.33-1.44	4.00-14.00	0.14-0.21	1.0-5.9	0.1-0.3	.32	.32			
	14-26	25-70	10-45	18-30	1.33-1.44	1.40-4.00	0.09-0.20	1.0-5.9	0.1-0.3	.37	.37			
	26-40	25-70	10-45	18-30	1.39-1.50	1.40-4.00	0.06-0.20	1.0-5.9	0.0-0.2	.37	.37			
	40-62	5-45	40-70	15-25	1.39-1.55	1.40-4.00	0.09-0.20	1.0-5.9	0.0-0.2	.55	.55			
648:														
Turpin	0-3	50-70	5-20	22-33	1.28-1.30	4.00-14.00	0.14-0.16	1.0-2.9	0.4-1.0	.17	.17	5	5	56
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
Reese	0-4	55-75	15-35	5-15	1.20-1.40	4.00-14.00	0.01-0.03	0.0-2.9	1.0-3.0	.49	.49	2	3	86
	4-10	30-50	30-48	10-25	1.30-1.45	1.40-4.00	0.01-0.03	0.0-2.9	0.5-1.0	.37	.37			
	10-33	25-50	30-48	20-30	1.30-1.50	0.42-1.40	0.01-0.03	3.0-5.9	0.0-0.5	.37	.37			
	33-44	30-75	15-48	10-25	1.40-1.55	4.00-14.00	0.03-0.06	0.0-2.9	0.0-0.5	.43	.43			
	44-60	30-75	15-48	10-25	1.40-1.55	1.40-4.00	0.05-0.08	0.0-2.9	0.0-0.5	.37	.37			
649:														
Turpin	0-3	50-70	10-40	5-18	1.25-1.30	14.00-42.00	0.13-0.15	1.0-2.9	0.4-1.0	.37	.37	5	3	86
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
Turpin, overblown	0-3	50-70	10-40	5-18	1.25-1.30	14.00-42.00	0.11-0.13	1.0-2.9	0.4-1.0	.32	.32	5	3	86
	3-18	30-60	20-40	12-35	1.25-1.30	1.40-14.00	0.04-0.12	3.0-6.0	0.2-0.8	.37	.37			
	18-60	30-70	10-40	10-35	1.25-1.30	1.40-42.00	0.05-0.14	1.0-6.0	0.2-0.6	.28	.28			
650:														
Vitale	0-3	60-70	15-20	15-18	1.07-1.24	14.00-42.00	0.04-0.08	0.0-2.9	1.0-2.0	.05	.24	2	6	48
	3-14	30-45	35-45	18-25	1.07-1.24	4.00-14.00	0.04-0.12	0.0-2.9	1.0-2.0	.05	.37			
	14-24	25-40	30-40	28-35	1.21-1.27	0.42-1.40	0.04-0.14	1.0-5.9	0.5-1.5	.10	.32			
	24-34				---	---	---	---	---	---	---			
651:														
Wagontire	0-5	25-40	30-40	28-35	1.21-1.38	4.00-14.00	0.12-0.18	1.0-5.9	1.0-2.0	.15	.28	1	7	38
	5-15	25-40	25-30	35-50	1.13-1.46	0.42-1.40	0.09-0.18	3.0-8.9	0.5-1.5	.17	.32			
	15-40				---	0.01-0.42	0.00-0.00	---	---	---	---			
	40-60	60-75	15-20	12-18	1.30-1.50	4.00-14.00	0.00-0.00	0.0-2.9	0.0-0.0	.10	.24			
652:														
Wanoga, south	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-20	5-10	0.90-1.30	42.00-141.00	0.06-0.08	1.0-2.9	1.0-3.0	.10	.15			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
653:														
Wanoga, south	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-20	5-10	0.90-1.30	42.00-141.00	0.06-0.08	1.0-2.9	1.0-3.0	.10	.15			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
654:														
Wanoga	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-20	5-10	0.90-1.30	42.00-141.00	0.06-0.08	1.0-2.9	1.0-3.0	.10	.15			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
Henkle	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	6	48
	1-6	75-85	5-20	5-10	0.81-1.11	42.00-141.00	0.05-0.07	1.0-2.9	2.0-4.0	.05	.24			
	6-16	35-70	25-45	5-20	0.84-1.18	14.00-42.00	0.11-0.21	1.0-2.9	0.5-2.0	.32	.55			
	16-20	35-70	25-45	5-20	0.88-1.18	14.00-42.00	0.03-0.14	1.0-2.9	0.4-0.8	.15	.55			
	20-30				---	---	---	---	---	---	---			
655:														
Wanoga	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-20	5-10	0.90-1.30	42.00-141.00	0.06-0.08	1.0-2.9	1.0-3.0	.10	.15			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
Henkle, cool	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	6	48
	1-6	75-85	5-20	5-10	0.81-1.11	42.00-141.00	0.05-0.07	1.0-2.9	2.0-4.0	.05	.24			
	6-16	35-70	25-45	5-20	0.84-1.18	14.00-42.00	0.11-0.21	1.0-2.9	0.5-2.0	.32	.55			
	16-20	35-70	25-45	5-20	0.88-1.18	14.00-42.00	0.03-0.14	1.0-2.9	0.4-0.8	.15	.55			
	20-30				---	---	---	---	---	---	---			
656:														
Wanoga, dry	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.09-0.12	1.0-2.9	1.0-3.0	.10	.10			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
Henkle, dry	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	6	48
	1-6	75-85	5-20	5-10	0.81-1.11	42.00-141.00	0.05-0.07	1.0-2.9	2.0-4.0	.05	.24			
	6-16	35-70	25-45	5-20	0.84-1.18	14.00-42.00	0.11-0.21	1.0-2.9	0.5-2.0	.32	.55			
	16-20	35-70	25-45	5-20	0.88-1.18	14.00-42.00	0.03-0.14	1.0-2.9	0.4-0.8	.15	.55			
	20-30				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
657:														
Wanoga, moist	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.09-0.12	1.0-2.9	1.0-3.0	.10	.10			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
Henkle, moist	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	6	48
	1-6	75-85	5-20	5-10	0.81-1.11	42.00-141.00	0.05-0.07	1.0-2.9	2.0-4.0	.05	.24			
	6-16	35-70	25-45	5-20	0.84-1.18	14.00-42.00	0.11-0.21	1.0-2.9	0.5-2.0	.32	.55			
	16-20	35-70	25-45	5-20	0.88-1.18	14.00-42.00	0.03-0.14	1.0-2.9	0.4-0.8	.15	.55			
	20-30				---	---	---	---	---	---	---			
658:														
Wanoga	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-20	5-10	0.90-1.30	42.00-141.00	0.06-0.08	1.0-2.9	1.0-3.0	.10	.15			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
Henkle	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	6	48
	1-6	75-85	5-20	5-10	0.81-1.11	42.00-141.00	0.05-0.07	1.0-2.9	2.0-4.0	.05	.24			
	6-16	35-70	25-45	5-20	0.84-1.18	14.00-42.00	0.11-0.21	1.0-2.9	0.5-2.0	.32	.55			
	16-20	35-70	25-45	5-20	0.88-1.18	14.00-42.00	0.03-0.14	1.0-2.9	0.4-0.8	.15	.55			
	20-30				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
659:														
Wanoga, north	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-20	5-10	0.90-1.30	42.00-141.00	0.06-0.08	1.0-2.9	1.0-3.0	.10	.15			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
Henkle, north	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	6	48
	1-6	75-85	5-20	5-10	0.81-1.11	42.00-141.00	0.05-0.07	1.0-2.9	2.0-4.0	.05	.24			
	6-16	35-70	25-45	5-20	0.84-1.18	14.00-42.00	0.11-0.21	1.0-2.9	0.5-2.0	.32	.55			
	16-20	35-70	25-45	5-20	0.88-1.18	14.00-42.00	0.03-0.14	1.0-2.9	0.4-0.8	.15	.55			
	20-30				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
660:														
Wanoga----------------	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-20	5-10	0.90-1.30	42.00-141.00	0.06-0.08	1.0-2.9	1.0-3.0	.10	.15			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
Laidlaw---------------	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-5	75-88	4-20	5-10	0.80-0.90	42.34-141.14	0.10-0.14	0.0-2.9	1.0-4.0	.05	.10			
	5-13	75-88	4-20	2-10	0.80-0.90	42.34-141.14	0.10-0.13	0.0-2.9	1.0-2.0	.20	.20			
	13-31	75-88	4-20	2-10	0.80-0.90	42.34-141.14	0.10-0.13	0.0-2.9	1.0-2.0	.17	.17			
	31-37	70-88	4-35	5-15	0.90-1.00	14.11-42.34	0.12-0.22	0.0-2.9	0.0-0.5	.15	.24			
	37-50	70-88	4-35	5-15	0.90-1.00	14.11-42.34	0.12-0.22	0.0-2.9	0.0-0.5	.32	.32			
	50-60	75-88	4-35	2-10	0.90-1.00	14.11-141.14	0.12-0.22	0.0-2.9	0.0-0.5	.32	.32			
661:														
Wanoga----------------	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	2	2	134
	1-8	75-85	5-20	5-10	0.90-1.30	42.00-141.00	0.06-0.08	1.0-2.9	1.0-3.0	.10	.15			
	8-23	60-90	5-30	5-15	0.90-1.30	14.00-141.00	0.06-0.09	1.0-2.9	1.0-3.0	.10	.10			
	23-29	60-80	10-30	10-15	1.00-1.30	14.00-141.00	0.11-0.20	1.0-2.9	0.2-0.6	.37	.37			
	29-39				---	---	---	---	---	---	---			
Sisters---------------	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	2	134
	1-10	80-85	5-20	2-10	0.66-1.12	42.00-141.00	0.09-0.12	1.0-2.9	2.0-7.0	.05	.05			
	10-17	80-95	5-15	2-10	0.90-1.20	42.00-141.00	0.06-0.09	1.0-2.9	0.2-2.0	.02	.02			
	17-33	80-95	5-15	2-10	0.90-1.20	42.00-141.00	0.06-0.09	1.0-2.9	0.2-2.0	.05	.05			
	33-47	30-45	25-45	10-30	1.00-1.35	1.40-14.00	0.19-0.24	1.0-2.9	0.2-0.5	.43	.43			
	47-51				---	---	---	---	---	---	---			
663:														
Wegert----------------	0-2	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.12-0.17	1.0-2.9	2.0-3.0	.20	.20	2	1	220
	2-6	75-85	5-15	5-10	0.95-1.30	42.00-141.00	0.08-0.12	1.0-2.9	1.0-2.0	.10	.10			
	6-27	60-85	5-25	5-15	1.00-1.35	42.00-141.00	0.08-0.12	1.0-2.9	0.4-0.8	.17	.17			
	27-31	75-85	5-15	5-10	1.00-1.35	42.00-141.00	0.02-0.08	1.0-2.9	0.2-0.6	.05	.28			
	31-41				---	---	---	---	---	---	---			
664:														
Wegert, cool----------	0-2	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.07-0.12	1.0-2.9	2.0-3.0	.15	.15	2	1	220
	2-6	75-85	5-15	5-10	0.95-1.30	42.00-141.00	0.08-0.12	1.0-2.9	1.0-2.0	.10	.10			
	6-27	60-85	5-25	5-15	1.00-1.35	42.00-141.00	0.08-0.12	1.0-2.9	0.4-0.8	.17	.17			
	27-31	75-85	5-15	5-10	1.00-1.35	42.00-141.00	0.02-0.08	1.0-2.9	0.2-0.6	.05	.28			
	31-41				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
665:														
Wegert---------------	0-2	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.05-0.11	1.0-2.9	2.0-3.0	.05	.20	2	2	134
	2-6	75-85	5-15	5-10	0.95-1.30	42.00-141.00	0.08-0.12	1.0-2.9	1.0-2.0	.10	.10			
	6-27	60-85	5-25	5-15	1.00-1.35	42.00-141.00	0.08-0.12	1.0-2.9	0.4-0.8	.17	.17			
	27-31	75-85	5-15	5-10	1.00-1.35	42.00-141.00	0.02-0.08	1.0-2.9	0.2-0.6	.05	.28			
	31-41				---	---	---	---	---	---	---			
666:														
Wegert---------------	0-2	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.06-0.11	1.0-2.9	2.0-3.0	.05	.15	2	1	220
	2-6	75-85	5-15	5-10	0.95-1.30	42.00-141.00	0.08-0.12	1.0-2.9	1.0-2.0	.10	.10			
	6-27	60-85	5-25	5-15	1.00-1.35	42.00-141.00	0.08-0.12	1.0-2.9	0.4-0.8	.17	.17			
	27-31	75-85	5-15	5-10	1.00-1.35	42.00-141.00	0.02-0.08	1.0-2.9	0.2-0.6	.05	.28			
	31-41				---	---	---	---	---	---	---			
Kunceider------------	0-5	80-85	5-10	5-10	0.92-1.23	14.00-42.00	0.06-0.09	0.0-2.9	2.0-3.0	.10	.17	1	1	220
	5-9	80-85	5-10	5-10	0.94-1.30	14.00-42.00	0.03-0.08	0.0-2.9	1.0-2.0	.05	.24			
	9-14	65-85	10-20	5-15	0.98-1.34	14.00-42.00	0.03-0.12	0.0-2.9	0.1-0.5	.05	.28			
	14-24				---	---	---	---	---	---	---			
667:														
Wegert, cool---------	0-2	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.06-0.11	1.0-2.9	2.0-3.0	.05	.15	2	1	220
	2-6	75-85	5-15	5-10	0.95-1.30	42.00-141.00	0.08-0.12	1.0-2.9	1.0-2.0	.10	.10			
	6-27	60-85	5-25	5-15	1.00-1.35	42.00-141.00	0.08-0.12	1.0-2.9	0.4-0.8	.17	.17			
	27-31	75-85	5-15	5-10	1.00-1.35	42.00-141.00	0.02-0.08	1.0-2.9	0.2-0.6	.05	.28			
	31-41				---	---	---	---	---	---	---			
Kunceider, cool------	0-5	80-85	5-10	5-10	0.92-1.23	14.00-42.00	0.06-0.09	0.0-2.9	2.0-3.0	.10	.17	1	1	220
	5-9	80-85	5-10	5-10	0.94-1.30	14.00-42.00	0.03-0.08	0.0-2.9	1.0-2.0	.05	.24			
	9-14	65-85	10-20	5-15	0.98-1.34	14.00-42.00	0.03-0.12	0.0-2.9	0.1-0.5	.05	.28			
	14-24				---	---	---	---	---	---	---			
668:														
Wegert, high precipitation-------	0-2	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.06-0.11	1.0-2.9	2.0-3.0	.05	.15	2	1	220
	2-6	75-85	5-15	5-10	0.95-1.30	42.00-141.00	0.08-0.12	1.0-2.9	1.0-2.0	.10	.10			
	6-27	60-85	5-25	5-15	1.00-1.35	42.00-141.00	0.08-0.12	1.0-2.9	0.4-0.8	.17	.17			
	27-31	75-85	5-15	5-10	1.00-1.35	42.00-141.00	0.02-0.08	1.0-2.9	0.2-0.6	.05	.28			
	31-41				---	---	---	---	---	---	---			
Kunceider, high precipitation-------	0-5	80-85	5-10	5-10	0.92-1.23	14.00-42.00	0.06-0.09	0.0-2.9	2.0-3.0	.10	.17	1	1	220
	5-9	80-85	5-10	5-10	0.94-1.30	14.00-42.00	0.03-0.08	0.0-2.9	1.0-2.0	.05	.24			
	9-14	65-85	10-20	5-15	0.98-1.34	14.00-42.00	0.03-0.12	0.0-2.9	0.1-0.5	.05	.28			
	14-24				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
669:														
Wegert	0-2	75-85	5-15	5-10	0.90-1.30	42.00-141.00	0.07-0.12	1.0-2.9	2.0-3.0	.15	.15	2	1	220
	2-6	75-85	5-15	5-10	0.95-1.30	42.00-141.00	0.08-0.12	1.0-2.9	1.0-2.0	.10	.10			
	6-27	60-85	5-25	5-15	1.00-1.35	42.00-141.00	0.08-0.12	1.0-2.9	0.4-0.8	.17	.17			
	27-31	75-85	5-15	5-10	1.00-1.35	42.00-141.00	0.02-0.08	1.0-2.9	0.2-0.6	.05	.28			
	31-41				---	---	---	---	---	---	---			
Morehouse	0-5	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.11-0.17	0.0-2.9	0.5-1.0	.28	.28	5	1	220
	5-22	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.17	.17			
	22-41	80-85	9-10	3-8	0.97-1.27	42.00-141.00	0.05-0.12	0.0-2.9	0.5-1.0	.24	.24			
	41-60	30-50	40-60	10-25	0.98-1.29	4.00-14.00	0.06-0.31	1.0-2.9	0.1-0.5	.43	.43			
670:														
Weglike	0-3	55-75	15-35	5-12	0.91-1.19	14.00-42.00	0.10-0.15	1.0-2.9	2.0-3.0	.10	.20	2	4	86
	3-12	75-80	15-17	5-10	0.91-1.24	14.00-42.00	0.08-0.20	1.0-2.9	1.0-3.0	.24	.24			
	12-22	30-60	20-40	18-30	1.27-1.44	4.00-14.00	0.07-0.18	1.0-5.9	0.1-0.5	.20	.43			
	22-23	25-50	30-45	18-30	1.28-1.44	4.00-14.00	0.05-0.14	1.0-2.9	0.1-0.3	.05	.43			
	23-33				---	---	---	---	---	---	---			
Jacksplace	0-4	80-90	5-10	8-10	0.93-1.29	14.00-42.00	0.06-0.11	0.0-2.9	1.0-2.0	.10	.17	2	1	220
	4-9	60-85	5-30	8-12	0.93-1.29	14.00-42.00	0.09-0.17	0.0-2.9	1.0-2.0	.10	.17			
	9-12	55-70	15-25	16-19	0.97-1.32	4.00-14.00	0.06-0.12	0.0-2.9	0.5-1.0	.10	.32			
	12-20	50-65	15-20	18-28	0.97-1.34	4.00-14.00	0.06-0.15	3.0-5.9	0.1-0.5	.10	.55			
	20-26	55-70	15-25	16-19	0.99-1.35	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.3	.05	.28			
	26-30				---	---	---	---	---	---	---			
671:														
Weglike	0-3	75-85	5-20	4-10	0.91-1.19	14.00-42.00	0.08-0.12	1.0-2.9	2.0-3.0	.15	.15	2	1	220
	3-12	75-80	15-17	5-10	0.91-1.24	14.00-42.00	0.08-0.20	1.0-2.9	1.0-3.0	.24	.24			
	12-22	30-60	20-40	18-30	1.27-1.44	4.00-14.00	0.07-0.18	1.0-5.9	0.1-0.5	.20	.43			
	22-23	25-50	30-45	18-30	1.28-1.44	4.00-14.00	0.05-0.14	1.0-2.9	0.1-0.3	.05	.43			
	23-33				---	---	---	---	---	---	---			
Suckerflat	0-8	75-85	5-20	4-10	0.90-1.30	14.00-42.00	0.07-0.12	1.0-2.9	1.0-3.0	.32	.32	1	1	220
	8-18	40-80	10-50	8-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43			
	18-28				---	---	---	---	---	---	---			
672:														
Westbutte, north	0-3	30-50	30-45	15-22	1.12-1.25	4.00-14.00	0.05-0.12	3.0-5.9	1.0-3.0	.10	.32	2	7	38
	3-11	30-50	25-45	18-30	1.20-1.25	1.40-14.00	0.05-0.13	3.0-5.9	1.0-3.0	.10	.37			
	11-21	30-50	25-45	18-30	1.20-1.30	1.40-14.00	0.05-0.15	3.0-5.9	0.6-2.0	.10	.37			
	21-31				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
672:														
Lambring, north	0-5	35-48	30-45	10-26	1.22-1.27	4.00-14.00	0.05-0.12	0.0-5.9	2.0-3.0	.10	.32	3	7	38
	5-20	55-70	20-26	10-18	1.22-1.27	14.00-42.00	0.04-0.08	0.0-2.9	2.0-3.0	.05	.20			
	20-50	45-85	10-32	5-15	1.36-1.59	14.00-42.00	0.01-0.05	0.0-2.9	0.1-0.5	.05	.24			
	50-60				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
673:														
Westbutte, north	0-3	30-50	30-45	15-22	1.12-1.25	4.00-14.00	0.05-0.12	3.0-5.9	1.0-3.0	.10	.32	2	7	38
	3-11	30-50	25-45	18-30	1.20-1.25	1.40-14.00	0.05-0.13	3.0-5.9	1.0-3.0	.10	.37			
	11-21	30-50	25-45	18-30	1.20-1.30	1.40-14.00	0.05-0.15	3.0-5.9	0.6-2.0	.10	.37			
	21-31				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
Pernty, south	0-3	55-75	15-35	8-15	1.05-1.20	14.00-42.00	0.07-0.11	1.0-2.9	1.0-3.0	.17	.37	1	5	56
	3-12	20-50	25-45	25-35	1.05-1.20	1.40-4.00	0.09-0.14	6.0-9.0	0.2-1.5	.10	.32			
	12-22				---	---	---	---	---	---	---			
674:														
Widowspring	0-7	10-30	55-65	15-25	1.07-1.34	4.00-42.00	0.19-0.21	1.0-5.9	1.0-3.0	.43	.43	5	6	48
	7-22	10-30	55-65	15-25	1.07-1.34	4.00-42.00	0.19-0.21	1.0-5.9	1.0-3.0	.49	.49			
	22-43	5-25	55-60	20-35	1.19-1.24	1.40-4.00	0.16-0.21	1.0-5.9	1.0-2.0	.49	.49			
	43-63	20-45	35-55	20-25	1.26-1.28	4.00-14.00	0.16-0.21	1.0-5.9	0.3-0.7	.49	.49			
675:														
Wildcatbutte	0-4	55-75	15-35	5-15	0.90-1.30	4.00-14.00	0.13-0.19	1.0-2.9	1.0-3.0	.17	.32	5	4	86
	4-24	30-50	30-50	10-18	0.90-1.30	4.00-14.00	0.06-0.17	1.0-2.9	1.0-3.0	.15	.55			
	24-60	30-85	10-40	5-18	0.90-1.30	4.00-141.00	0.03-0.11	1.0-2.9	0.2-0.8	.05	.32			
Chesebro	0-4	35-45	35-55	12-20	0.72-1.05	4.00-14.00	0.11-0.15	0.0-2.9	2.0-4.0	.10	.43	5	6	48
	4-24	35-45	35-55	12-20	0.72-1.05	4.00-14.00	0.08-0.17	0.0-2.9	2.0-4.0	.10	.43			
	24-60	30-55	25-40	22-32	0.99-1.30	4.00-14.00	0.08-0.20	3.0-5.9	0.5-2.0	.10	.49			
Glassbutte	0-4	60-68	22-24	8-18	1.00-1.35	14.00-42.00	0.12-0.20	1.0-2.9	2.0-4.0	.10	.24	2	4	86
	4-12	37-65	18-42	15-25	1.00-1.35	14.00-42.00	0.09-0.21	1.0-2.9	2.0-4.0	.10	.20			
	12-23	40-62	15-30	20-30	1.00-1.35	1.40-14.00	0.05-0.09	3.0-5.9	1.0-3.0	.10	.43			
	23-46	80-85	8-18	2-8	1.00-1.35	42.00-141.00	0.02-0.05	0.0-2.9	0.5-1.0	.02	.10			
	46-61	80-85	6-18	2-11	1.00-1.35	42.00-141.00	0.02-0.05	0.0-2.9	0.5-1.0	.02	.10			
676:														
Wildcatbutte, south	0-4	55-75	15-35	5-15	0.90-1.30	14.00-42.00	0.10-0.17	1.0-2.9	1.0-3.0	.17	.32	5	4	86
	4-24	30-50	30-50	10-18	0.90-1.30	4.00-14.00	0.06-0.17	1.0-2.9	1.0-3.0	.15	.55			
	24-60	30-85	10-40	5-18	0.90-1.30	4.00-141.00	0.03-0.11	1.0-2.9	0.2-0.8	.05	.32			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
676:														
Glencabin, north	0-5	55-70	15-35	10-15	0.85-1.30	14.00-42.00	0.12-0.18	1.0-2.9	1.0-3.0	.17	.28	2	4	86
	5-11	52-70	15-38	10-20	0.85-1.30	14.00-42.00	0.11-0.17	1.0-2.9	1.0-2.0	.10	.24			
	11-25	45-80	10-40	5-20	0.95-1.30	4.00-42.00	0.06-0.18	1.0-2.9	1.0-1.5	.10	.64			
	25-35				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
677:														
Wildcatbutte, south	0-4	55-75	15-35	5-15	0.90-1.30	14.00-42.00	0.10-0.17	1.0-2.9	1.0-3.0	.17	.32	5	4	86
	4-24	30-50	30-50	10-18	0.90-1.30	4.00-14.00	0.06-0.17	1.0-2.9	1.0-3.0	.15	.55			
	24-60	30-85	10-40	5-18	0.90-1.30	4.00-141.00	0.03-0.11	1.0-2.9	0.2-0.8	.05	.32			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
678:														
Wildcatbutte	0-4	30-50	30-50	10-18	0.90-1.30	4.00-14.00	0.06-0.11	1.0-2.9	1.0-3.0	.10	.49	5	7	38
	4-24	30-50	30-50	10-18	0.90-1.30	4.00-14.00	0.06-0.17	1.0-2.9	1.0-3.0	.15	.55			
	24-60	30-85	10-40	5-18	0.90-1.30	4.00-141.00	0.03-0.11	1.0-2.9	0.2-0.8	.05	.32			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
679:														
Wildcatbutte	0-4	55-75	15-35	5-15	0.90-1.30	4.00-14.00	0.13-0.19	1.0-2.9	1.0-3.0	.20	.32	5	4	86
	4-24	30-50	30-50	10-18	0.90-1.30	4.00-14.00	0.06-0.17	1.0-2.9	1.0-3.0	.15	.55			
	24-60	30-85	10-40	5-18	0.90-1.30	4.00-141.00	0.03-0.11	1.0-2.9	0.2-0.8	.05	.32			
Suckerflat, south	0-8	55-75	15-35	5-12	0.90-1.30	14.00-42.00	0.07-0.12	1.0-2.9	1.0-3.0	.17	.37	1	4	86
	8-18	40-80	10-50	8-18	0.90-1.30	14.00-42.00	0.18-0.23	1.0-2.9	1.0-3.0	.28	.43			
	18-28				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
680:														
Winterim	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	4	8	0
	1-6	25-53	20-50	20-27	1.20-1.30	4.00-14.00	0.07-0.10	0.0-2.9	2.0-5.0	.10	.28			
	6-13	25-50	25-50	25-30	1.30-1.40	1.40-4.00	0.10-0.14	0.0-2.9	1.0-3.0	.15	.28			
	13-22	20-45	10-35	35-50	1.40-1.50	0.42-1.40	0.06-0.11	3.0-5.9	1.0-3.0	.05	.24			
	22-46	15-40	10-35	40-50	1.40-1.50	0.42-1.40	0.06-0.10	6.0-8.9	0.5-1.0	.10	.24			
	46-56				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
681:														
Wiskan	0-3	75-90	5-15	4-10	1.66-1.75	14.00-42.00	0.04-0.07	1.0-2.9	0.4-0.8	.10	.24	2	3	86
	3-10	50-80	10-40	10-15	1.30-1.40	14.00-42.00	0.11-0.15	1.0-2.9	0.4-0.8	.15	.24			
	10-21	25-40	25-40	30-40	1.30-1.35	1.40-4.00	0.07-0.18	3.0-5.9	0.2-0.6	.10	.32			
	21-23	30-50	30-45	20-26	1.30-1.40	4.00-14.00	0.05-0.11	3.0-5.9	0.2-0.6	.15	.37			
	23-33				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
682:														
Xerolls, north	0-7	55-70	15-30	10-18	0.95-1.35	14.00-42.00	0.03-0.06	1.0-2.9	1.0-2.0	.02	.37	1	7	38
	7-11	30-70	15-40	10-35	0.97-1.60	1.40-42.00	0.03-0.11	1.0-5.9	1.0-2.0	.05	.37			
	11-21				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
683:														
Xerolls, north	0-7	55-70	15-30	10-18	0.95-1.35	14.00-42.00	0.03-0.06	1.0-2.9	1.0-2.0	.02	.37	1	7	38
	7-11	30-70	15-40	10-35	0.97-1.60	1.40-42.00	0.03-0.11	1.0-5.9	1.0-2.0	.05	.37			
	11-21				---	---	---	---	---	---	---			
Rock outcrop	0-60				---	---	---	---	---	---	---	---	---	---
684:														
Yankeewell	0-3	50-75	10-35	10-15	1.12-1.16	14.00-42.00	0.05-0.09	1.0-2.9	0.6-1.0	.10	.24	1	6	48
	3-6	40-70	20-40	12-24	1.25-1.30	4.00-14.00	0.12-0.16	3.0-5.9	0.2-0.6	.20	.37			
	6-11	25-40	25-40	27-35	1.43-1.50	1.40-4.00	0.15-0.21	6.0-9.0	0.2-0.6	.37	.37			
	11-25				---	0.01-0.42	0.00-0.00	---	---	---	---			
	25-35				---	---	---	---	---	---	---			
685:														
Yankeewell	0-3	30-50	30-45	10-24	1.12-1.16	4.00-14.00	0.08-0.12	1.0-2.9	0.6-1.0	.15	.37	1	8	0
	3-6	40-70	20-40	12-24	1.25-1.30	4.00-14.00	0.12-0.16	3.0-5.9	0.2-0.6	.20	.37			
	6-11	25-40	25-40	27-35	1.43-1.50	1.40-4.00	0.15-0.21	6.0-9.0	0.2-0.6	.37	.37			
	11-25				---	0.01-0.42	0.00-0.00	---	---	---	---			
	25-35				---	---	---	---	---	---	---			
Noidee	0-2	50-70	20-40	8-16	1.34-1.40	14.00-42.00	0.11-0.14	0.0-2.9	0.4-0.8	.05	.37	1	8	0
	2-5	20-50	10-35	35-45	1.20-1.40	0.42-1.40	0.10-0.14	6.0-9.0	0.2-0.6	.28	.28			
	5-16	20-60	10-40	25-45	1.20-1.40	0.42-4.00	0.04-0.12	3.0-9.0	0.2-0.4	.32	.32			
	16-26				---	---	---	---	---	---	---			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cm3	um/sec	In/in	Pct	Pct					
686:														
Yapoah, north	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86
	1-6	75-90	5-15	5-10	0.68-1.16	14.00-141.00	0.06-0.11	1.0-2.9	1.0-6.0	.02	.05			
	6-16	75-90	5-15	5-10	0.77-1.20	14.00-141.00	0.06-0.11	1.0-2.9	1.0-4.0	.05	.10			
	16-36	75-90	5-15	5-10	0.77-1.20	14.00-141.00	0.06-0.11	1.0-2.9	1.0-4.0	.02	.10			
	36-61	60-90	5-30	5-10	0.90-1.20	14.00-141.00	0.02-0.08	1.0-2.9	0.2-0.8	.02	.10			
687:														
Yapoah, south	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	3	3	86
	1-6	75-90	5-15	5-10	0.68-1.16	14.00-141.00	0.06-0.11	1.0-2.9	1.0-6.0	.02	.05			
	6-16	75-90	5-15	5-10	0.77-1.20	14.00-141.00	0.06-0.11	1.0-2.9	1.0-4.0	.05	.10			
	16-36	75-90	5-15	5-10	0.77-1.20	14.00-141.00	0.06-0.11	1.0-2.9	1.0-4.0	.02	.10			
	36-61	60-90	5-30	5-10	0.90-1.20	14.00-141.00	0.02-0.08	1.0-2.9	0.2-0.8	.02	.10			
688:														
Youtlkue	0-5	20-30	50-70	15-25	0.97-1.35	4.00-14.00	0.29-0.32	1.0-2.9	0.2-0.8	.43	.43	3	5	56
	5-22	20-50	30-70	15-32	1.00-1.35	4.00-14.00	0.26-0.32	1.0-2.9	0.2-1.5	.43	.43			
	22-32	20-30	55-70	15-25	1.50-1.80	1.40-4.00	0.06-0.20	1.0-2.9	0.2-0.6	.55	.55			
	32-42				---	---	---	---	---	---	---			
689:														
Zorravista	0-4	90-90	5-10	3-5	1.52-1.60	42.00-141.00	0.05-0.07	1.0-2.9	0.2-0.8	.05	.05	5	1	250
	4-60	80-90	5-20	3-5	1.55-1.60	42.00-141.00	0.09-0.11	1.0-2.9	0.2-0.6	.32	.32			
690:														
Zorravista	0-4	90-90	5-10	3-5	1.52-1.60	42.00-141.00	0.05-0.07	1.0-2.9	0.2-0.8	.05	.05	5	1	250
	4-60	80-90	5-20	3-5	1.55-1.60	42.00-141.00	0.09-0.11	1.0-2.9	0.2-0.6	.32	.32			
Hinton	0-1	75-95	2-20	2-10	1.42-1.51	42.00-141.00	0.04-0.07	0.0-2.9	1.0-2.0	.10	.15	2	2	134
	1-12	55-85	5-25	2-10	1.51-1.54	4.00-14.00	0.05-0.07	0.0-2.9	0.5-1.0	.28	.28			
	12-18	35-50	40-50	7-15	1.48-1.50	1.40-14.00	0.11-0.14	0.0-2.9	0.0-0.5	.28	.43			
	18-60	90-95	1-5	2-10	1.58-1.60	1.40-141.00	0.00-0.04	0.0-2.9	0.0-0.5	.02	.02			
691:														
Lithic Haploxerolls	0-2	55-70	15-30	10-18	0.95-1.35	14.00-42.00	0.03-0.06	1.0-2.9	1.0-2.0	.02	.37	1	7	38
	2-11	30-70	15-40	10-30	0.97-1.60	1.40-42.00	0.03-0.11	1.0-5.9	1.0-2.0	.05	.37			
	11-21				---	---	---	---	---	---	---			
Lava flows	0-60				---	---	---	---	---	---	---	---	---	---
692:														
Steiger	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-4	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	2.0-7.0	.10	.10			
	4-12	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	1.0-2.0	.17	.17			
	12-45	75-95	5-20	2-5	0.77-1.16	42.00-141.00	0.02-0.09	1.0-2.9	0.2-0.6	.02	.02			
	45-60	40-70	20-40	5-18	1.16-1.20	4.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.15	.32			

Table 8.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cm3*	*um/sec*	*In/in*	*Pct*	*Pct*					
693: Steiger, high elevation-----------	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-4	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	2.0-7.0	.10	.10			
	4-12	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	1.0-2.0	.17	.17			
	12-45	75-95	5-20	2-5	0.77-1.16	42.00-141.00	0.02-0.09	1.0-2.9	0.2-0.6	.02	.02			
	45-60	40-70	20-40	5-18	1.16-1.20	4.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.15	.32			
694: Steiger, low landscape position--	0-1	25-45	40-60	0-25	0.10-0.30	42.00-705.00	0.30-0.60	---	60-95	---	---	5	2	134
	1-4	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	2.0-7.0	.10	.10			
	4-12	75-85	10-20	1-5	0.52-0.74	42.00-141.00	0.08-0.11	1.0-2.9	1.0-2.0	.17	.17			
	12-45	75-95	5-20	2-5	0.77-1.16	42.00-141.00	0.02-0.09	1.0-2.9	0.2-0.6	.02	.02			
	45-60	40-70	20-40	5-18	1.16-1.20	4.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.15	.32			
695: Ninemile, hummocky---	0-2	40-50	30-50	10-22	1.26-1.41	4.00-14.00	0.10-0.16	1.0-2.9	1.0-3.0	.24	.43	1	6	48
	2-17	20-40	20-35	35-50	1.20-1.50	0.42-1.40	0.09-0.16	6.0-9.0	0.2-1.0	.17	.28			
	17-27				---	---	---	---	---	---	---			
696: Shanahan-------------	0-4	75-90	10-20	0-5	0.78-1.20	42.00-142.00	0.08-0.11	1.0-2.9	0.5-1.0	.02	.02	5	2	134
	4-9	75-90	10-20	0-5	0.78-1.20	42.00-142.00	0.08-0.11	1.0-2.9	0.5-1.0	.15	.15			
	9-38	75-95	0-20	0-15	0.90-1.20	42.00-142.00	0.06-0.09	1.0-2.9	0.2-0.6	.02	.02			
	38-60	50-70	10-30	10-15	1.34-1.40	14.00-42.00	0.07-0.13	1.0-2.9	0.2-0.6	.17	.28			
888: Denied access--------	---				---	---	---	---	---	---	---	---	---	---
999: Water----------------	---				---	---	---	---	---	---	---	---	---	---

Table 9.—Chemical Soil Properties

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
200:						
Abert	0-2	15-35	6.6-7.8	0	0	0
	2-8	15-35	6.6-7.8	0	0	0
	8-13	15-35	7.9-9.0	0-2	0.0-2.0	0-1
	13-25	15-35	8.5-9.5	5-10	4.0-8.0	30-90
	25-35	15-35	8.5-9.8	2-5	8.0-16.0	90-170
	35-60	15-35	8.5-9.7	2-5	8.0-16.0	70-150
201:						
Actem	0-2	15-25	6.6-7.3	0	0	0
	2-7	25-40	6.6-7.8	0	0	0
	7-15	25-40	6.6-7.8	1-3	0	0
	15-20	---	---	---	---	---
	20-30	---	---	---	---	---
202:						
Alyan	0-3	8.0-18	6.6-7.8	0	0	0
	3-11	11-20	6.6-7.8	0	0	0
	11-23	25-35	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
203:						
Anawalt	0-3	8.0-19	6.6-8.4	0	0	0
	3-7	20-42	6.6-8.4	0	0	0
	7-18	24-42	6.6-8.4	0-1	0.0-2.0	0
	18-28	---	---	---	---	---
204:						
Anawalt	0-3	8.0-19	6.6-8.4	0	0	0
	3-7	20-42	6.6-8.4	0	0	0
	7-18	24-42	6.6-8.4	0-1	0.0-2.0	0
	18-28	---	---	---	---	---
205:						
Anawalt	0-3	8.0-19	6.6-8.4	0	0	0
	3-7	20-42	6.6-8.4	0	0	0
	7-18	24-42	6.6-8.4	0-1	0.0-2.0	0
	18-28	---	---	---	---	---
Freznik	0-2	10-20	6.6-8.4	0	0	0
	2-11	12-29	6.6-8.4	0	0	0
	11-17	12-29	6.6-8.4	0	0	0
	17-23	12-29	7.4-8.4	0-1	0.0-2.0	0
	23-31	9.4-20	7.4-8.4	0-1	0.0-2.0	0-2
	31-41	---	---	---	---	---
206:						
Anawalt	0-3	8.0-19	6.6-8.4	0	0	0
	3-7	20-42	6.6-8.4	0	0	0
	7-18	24-42	6.6-8.4	0-1	0.0-2.0	0
	18-28	---	---	---	---	---
Oreneva	0-2	7.0-12	6.6-7.8	0	0	0
	2-10	9.0-15	6.6-7.8	0	0	0
	10-21	9.0-15	7.4-8.4	0	0	0
	21-31	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
207:						
Anawalt	0-3	8.0-19	6.6-8.4	0	0	0
	3-7	20-42	6.6-8.4	0	0	0
	7-18	24-42	6.6-8.4	0-1	0.0-2.0	0
	18-28	---	---	---	---	---
Raz	0-4	7.0-17	7.4-7.8	0	0	0
	4-12	9.0-15	7.4-7.8	0	0	0
	12-17	6.0-15	7.4-8.4	0-2	0.0-2.0	0
	17-30	---	---	---	---	---
	30-40	---	---	---	---	---
208:						
Anawalt	0-3	8.0-19	6.6-8.4	0	0	0
	3-7	20-42	6.6-8.4	0	0	0
	7-18	24-42	6.6-8.4	0-1	0.0-2.0	0
	18-28	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
209:						
Atlow	0-3	10-14	6.6-7.8	0	0	0
	3-11	13-18	6.6-7.8	0	0	0
	11-21	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
210:						
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Clamp	0-3	20-30	6.6-7.8	0	0	0
	3-8	20-27	6.6-7.8	0	0	0
	8-12	20-27	6.6-7.8	0	0	0
	12-22	---	---	---	---	---
211:						
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
212:						
Bluesters	0-4	17-41	6.6-7.3	0	0	0
	4-12	17-40	6.6-7.3	0	0	0
	12-23	15-37	6.6-7.3	0	0	0
	23-28	15-35	6.6-7.3	0	0	0
	28-60	0.0-0.0	6.6-7.3	0	0	0
213:						
Bluesters, dry	0-4	17-41	6.6-7.3	0	0	0
	4-12	17-40	6.6-7.3	0	0	0
	12-23	15-37	6.6-7.3	0	0	0
	23-28	15-35	6.6-7.3	0	0	0
	28-60	0.0-0.0	6.6-7.3	0	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
214:						
Boilout	0-3	15-35	7.4-7.8	0	0	0
	3-6	15-35	7.4-7.8	0	0	0
	6-11	15-35	7.4-8.4	0	0	0
	11-16	15-35	7.4-8.4	1-3	0.0-2.0	0
	16-34	---	---	---	---	---
	34-59	---	---	---	---	---
	59-62	---	---	---	---	---
215:						
Bonnick	0-3	15-35	7.4-7.8	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-28	15-35	7.4-8.4	0	0	0
	28-42	15-35	7.4-8.4	0	0	0
	42-45	15-35	7.9-9.0	0	0.0-2.0	0
	45-60	0.0-1.0	7.9-9.0	0	0.0-2.0	0
216:						
Bonnick	0-3	15-35	7.4-7.8	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-28	15-35	7.4-8.4	0	0	0
	28-42	15-35	7.4-8.4	0	0	0
	42-45	15-35	7.9-9.0	0	0.0-2.0	0
	45-60	0.0-1.0	7.9-9.0	0	0.0-2.0	0
217:						
Bonnick	0-3	15-35	7.4-7.8	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-28	15-35	7.4-8.4	0	0	0
	28-42	15-35	7.4-8.4	0	0	0
	42-45	15-35	7.9-9.0	0	0.0-2.0	0
	45-60	0.0-1.0	7.9-9.0	0	0.0-2.0	0
Fort Rock	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
218:						
Bonnick	0-3	15-35	7.4-7.8	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-28	15-35	7.4-8.4	0	0	0
	28-42	15-35	7.4-8.4	0	0	0
	42-45	15-35	7.9-9.0	0	0.0-2.0	0
	45-60	0.0-1.0	7.9-9.0	0	0.0-2.0	0
Fort Rock	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
219:						
Bonnick, low precipitation-------	0-3	15-35	7.4-7.8	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-28	15-35	7.4-8.4	0	0	0
	28-42	15-35	7.4-8.4	0	0	0
	42-45	15-35	7.9-9.0	0	0.0-2.0	0
	45-60	0.0-1.0	7.9-9.0	0	0.0-2.0	0
Fort Rock, low precipitation-------	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
220:						
Bonnick--------------	0-3	15-35	7.4-7.8	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-28	15-35	7.4-8.4	0	0	0
	28-42	15-35	7.4-8.4	0	0	0
	42-45	15-35	7.9-9.0	0	0.0-2.0	0
	45-60	0.0-1.0	7.9-9.0	0	0.0-2.0	0
Kunceider------------	0-5	17-41	6.6-7.3	0	0	0
	5-9	17-39	6.6-7.3	0	0	0
	9-14	15-35	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
221:						
Bonnick--------------	0-3	15-35	7.4-7.8	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-28	15-35	7.4-8.4	0	0	0
	28-42	15-35	7.4-8.4	0	0	0
	42-45	15-35	7.9-9.0	0	0.0-2.0	0
	45-60	0.0-1.0	7.9-9.0	0	0.0-2.0	0
Morehouse------------	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
222:						
Booth----------------	0-4	30-40	6.1-7.3	0	0	0
	4-24	50-75	6.1-7.3	0	0	0
	24-26	---	---	---	---	---
	26-36	---	---	---	---	---
223:						
Booth----------------	0-4	30-40	6.1-7.3	0	0	0
	4-24	50-75	6.1-7.3	0	0	0
	24-26	---	---	---	---	---
	26-36	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
224:						
Borobey--------------	0-4	15-37	6.6-7.8	0	0	0
	4-12	17-41	6.6-7.8	0	0	0
	12-50	15-37	6.6-8.4	0	0.0-2.0	0-1
	50-68	15-37	6.6-8.4	0	0.0-2.0	0-1

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
225:						
Borobey	0-4	15-37	6.6-7.8	0	0	0
	4-12	17-41	6.6-7.8	0	0	0
	12-50	15-37	6.6-8.4	0	0.0-2.0	0-1
	50-68	15-37	6.6-8.4	0	0.0-2.0	0-1
226:						
Borobey	0-4	15-37	6.6-7.8	0	0	0
	4-12	17-41	6.6-7.8	0	0	0
	12-50	15-37	6.6-8.4	0	0.0-2.0	0-1
	50-68	15-37	6.6-8.4	0	0.0-2.0	0-1
227:						
Borobey	0-4	15-37	6.6-7.8	0	0	0
	4-12	17-41	6.6-7.8	0	0	0
	12-50	15-37	6.6-8.4	0	0.0-2.0	0-1
	50-68	15-37	6.6-8.4	0	0.0-2.0	0-1
Morehouse	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
228:						
Borobey	0-4	15-37	6.6-7.8	0	0	0
	4-12	17-41	6.6-7.8	0	0	0
	12-50	15-37	6.6-8.4	0	0.0-2.0	0-1
	50-68	15-37	6.6-8.4	0	0.0-2.0	0-1
Oatmanflat	0-3	17-41	6.6-7.8	0	0	0
	3-12	15-37	6.6-7.8	0	0.0-2.0	0
	12-28	15-37	6.6-7.8	0	0.0-2.0	0-2
	28-44	15-35	7.4-8.4	0-2	0.0-2.0	0-2
	44-53	15-35	7.4-8.4	0-2	0.0-2.0	0-2
	53-64	---	---	---	---	---
229:						
Borobey	0-4	15-37	6.6-7.8	0	0	0
	4-12	17-41	6.6-7.8	0	0	0
	12-50	15-37	6.6-8.4	0	0.0-2.0	0-1
	50-68	15-37	6.6-8.4	0	0.0-2.0	0-1
Overallflat	0-4	15-35	7.4-7.8	0	0	0
	4-7	15-35	7.4-7.8	0	0	0
	7-14	15-35	7.4-7.8	0	0	0
	14-26	15-35	7.4-8.4	1-3	0.0-2.0	0
	26-60	15-35	7.4-8.4	0	0.0-2.0	0
230:						
Brabble	0-3	10-18	6.6-7.8	0	0	0
	3-9	10-18	6.6-7.8	0	0	0
	9-26	10-18	7.4-8.4	0	0.0-2.0	0-1
	26-33	10-18	7.9-9.0	1-3	2.0-4.0	0-2
	33-38	---	---	---	---	---
	38-48	---	---	---	---	---
Calderwood	0-2	7.0-18	6.6-8.4	0	0	0
	2-10	10-18	6.6-8.4	0	0.0-2.0	0
	10-20	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
231:						
Brace	0-10	7.0-17	7.4-7.8	0	0	0
	10-14	10-18	7.4-8.4	0	0	0
	14-22	10-15	7.4-8.4	1-3	0.0-4.0	0
	22-26	---	---	---	---	---
	26-36	---	---	---	---	---
Foleylake	0-2	7.0-13	7.4-7.8	0	0	0
	2-8	8.0-14	7.4-7.8	0	0	0
	8-18	28-35	7.4-8.4	0	0	0
	18-23	20-28	7.8-8.4	1-5	0.0-2.0	0
	23-27	---	---	---	---	---
	27-37	---	---	---	---	---
232:						
Bridgewell	0-3	23-51	7.9-8.4	0	0.0-2.0	0
	3-23	23-59	7.9-8.4	1-3	0.0-2.0	0
	23-36	17-41	7.9-8.4	1-3	0.0-4.0	0
	36-60	15-37	7.9-8.4	1-3	0.0-4.0	0
233:						
Bridgewell	0-2	15-36	7.4-7.8	0	0	0
	2-12	14-21	7.4-7.8	0	0.0-2.0	0
	12-60	7.0-13	7.4-7.8	0	0.0-2.0	0
234:						
Bullump, south	0-3	10-27	6.6-7.8	0	0	0
	3-11	10-27	6.6-7.8	0	0	0
	11-42	17-27	6.6-7.8	0	0	0
	42-60	14-18	6.6-7.8	0	0	0
Rock outcrop	0-60	---	---	---	---	---
Nuss, south	0-3	7.0-14	6.1-7.8	0	0	0
	3-17	10-17	6.1-7.8	0	0	0
	17-27	---	---	---	---	---
236:						
Bunyard	0-2	15-37	7.9-9.6	0-1	2.0-4.0	2-6
	2-6	46-70	8.5-9.6	0-1	8.0-16.0	13-80
	6-16	33-54	8.5-9.6	1-5	8.0-16.0	13-80
	16-40	15-35	8.5-9.6	1-5	8.0-16.0	13-80
	40-60	15-35	7.9-9.6	1-3	4.0-8.0	5-40
237:						
Cabinspring	0-8	15-35	6.6-7.8	0	0	0
	8-12	15-35	6.6-7.8	0	0	0
	12-24	15-35	6.6-7.8	0	0	0
	24-30	10-35	6.6-7.8	0	0	0
	30-36	15-35	6.6-7.8	0	0	0
	36-46	---	---	---	---	---
Chesebro	0-4	20-40	6.6-7.3	0	0	0
	4-24	20-45	6.6-7.8	0	0	0
	24-60	15-40	6.6-7.8	0	0	0
Hayespring	0-5	17-41	7.4-7.8	0	0	0
	5-13	17-41	7.4-7.8	0	0	0
	13-37	15-39	7.4-7.8	0	0	0
	37-60	4.0-13	7.4-7.8	0	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
238:						
Calderwood-----------	0-2	7.0-18	6.6-8.4	0	0	0
	2-10	10-18	6.6-8.4	0	0.0-2.0	0
	10-20	---	---	---	---	---
McConnel-------------	0-1	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	1-12	3.0-10	7.4-8.4	0-2	0.0-4.0	0-2
	12-18	3.0-10	7.4-9.0	0-5	0.0-12.0	0-15
	18-60	1.0-7.0	7.9-9.4	1-5	2.0-12.0	2-15
239:						
Carryback, eroded----	0-2	15-20	6.6-7.8	0	0	0
	2-8	20-25	6.6-7.8	0	0	0
	8-15	30-40	7.4-7.8	0	0	0
	15-33	15-20	7.9-8.4	0-2	0.0-2.0	0
	33-43	---	---	---	---	---
240:						
Carryback------------	0-3	20-25	6.6-7.8	0	0	0
	3-7	20-31	6.6-7.8	0	0	0
	7-11	30-45	7.4-7.8	0	0	0
	11-17	28-42	7.4-7.8	0	0	0
	17-24	28-42	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
241:						
Carryback------------	0-3	20-25	6.6-7.8	0	0	0
	3-7	20-31	6.6-7.8	0	0	0
	7-11	30-45	7.4-7.8	0	0	0
	11-17	28-42	7.4-7.8	0	0	0
	17-24	28-42	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
Pearlwise------------	0-6	14-25	6.6-7.8	0	0	0
	6-22	14-28	6.6-7.8	0	0	0
	22-37	---	---	---	---	---
242:						
Carvix---------------	0-6	8.0-18	6.6-8.4	0-2	0.0-2.0	0
	6-19	8.0-16	7.4-8.4	0	0.0-2.0	0
	19-60	9.0-15	7.4-8.4	0	0.0-2.0	0
243:						
Catlow---------------	0-3	7.0-11	7.4-8.4	0	0	0
	3-21	5.0-13	7.4-8.4	0	0	0
	21-30	3.0-8.0	7.4-8.4	0-1	0.0-2.0	0
	30-60	2.0-5.0	7.4-8.4	0-1	0.0-2.0	0
244:						
Catlow---------------	0-3	3.0-8.0	7.4-8.4	0	0	0
	3-21	5.0-13	7.4-8.4	0	0	0
	21-30	3.0-8.0	7.4-8.4	0-1	0.0-2.0	0
	30-60	2.0-5.0	7.4-8.4	0-1	0.0-2.0	0
Davey----------------	0-3	1.0-4.0	6.6-7.8	0	0	0
	3-23	3.0-8.0	6.6-8.4	0	0	0
	23-60	1.0-5.0	7.4-9.0	0-1	0.0-2.0	0-2

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
245:						
Catnapp	0-5	7.0-17	7.9-8.4	0	0.0-2.0	0-5
	5-7	6.0-17	7.9-9.0	0	0.0-2.0	0-5
	7-14	25-39	7.9-9.6	0	4.0-8.0	13-30
	14-25	25-39	8.5-9.6	1-5	4.0-8.0	13-30
	25-35	---	---	---	---	---
246:						
Chancelakes	0-1	10-31	7.4-8.4	0	0	0
	1-10	25-32	7.4-9.0	0	0	0
	10-29	25-39	7.9-9.0	2-5	2.0-4.0	0-2
	29-58	21-42	7.9-9.0	2-5	2.0-4.0	0-2
	58-63	39-60	7.9-9.0	1-3	2.0-4.0	0-2
Silverash	0-2	15-37	6.6-7.8	0	0	0
	2-8	15-35	7.4-7.8	0	0	0
	8-21	24-35	7.4-7.8	0	0	0
	21-62	10-24	7.4-8.4	0-1	0.0-4.0	0-2
247:						
Chen	0-2	7.0-23	6.6-7.8	0	0	0
	2-6	7.0-24	6.6-7.8	0	0	0
	6-17	27-39	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
Erakatak	0-3	7.0-18	6.6-7.3	0	0	0
	3-11	14-29	6.6-7.3	0	0	0
	11-20	26-32	6.6-7.8	0	0	0
	20-27	26-32	6.6-7.8	0	0	0
	27-37	---	---	---	---	---
Lambring, north	0-5	8.0-14	6.6-7.8	0	0	0
	5-20	9.0-17	6.6-7.8	0	0	0
	20-50	3.0-10	6.6-7.8	0	0	0
	50-60	---	---	---	---	---
248:						
Chesebro	0-4	20-40	6.6-7.3	0	0	0
	4-24	20-45	6.6-7.8	0	0	0
	24-60	15-40	6.6-7.8	0	0	0
Rock outcrop	0-60	---	---	---	---	---
249:						
Cinderfall	0-3	17-40	6.6-7.3	0	0	0
	3-21	17-40	6.6-7.8	0	0	0
	21-62	15-37	7.4-9.0	1-3	2.0-4.0	1-12
	62-68	15-35	7.9-9.0	1-3	2.0-4.0	1-12
Fort Rock	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
Kunceider	0-5	17-41	6.6-7.3	0	0	0
	5-9	17-39	6.6-7.3	0	0	0
	9-14	15-35	6.6-7.8	0	0	0
	14-24	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
250:						
Cleavage	0-7	10-19	6.6-7.3	0	0	0
	7-11	13-23	6.6-7.8	0	0	0
	11-21	---	---	---	---	---
Ninemile	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
Westbutte	0-3	10-19	6.6-7.3	0	0	0
	3-11	13-25	6.6-7.3	0	0	0
	11-21	13-23	6.6-7.8	0	0	0
	21-31	---	---	---	---	---
251:						
Cleet	0-2	8.0-13	7.4-7.8	0	0.0-2.0	0-2
	2-15	13-18	7.4-7.8	0	0.0-4.0	0-2
	15-60	---	---	---	---	---
252:						
Clurde	0-3	5.0-14	6.6-7.8	0	0	0
	3-12	9.0-15	6.6-9.0	0	0	0-4
	12-38	8.0-14	7.4-9.0	2-4	4.0-8.0	2-12
	38-62	8.0-14	7.4-9.0	0-1	2.0-4.0	2-12
253:						
Clurde	0-3	5.0-14	6.6-7.8	0	0	0
	3-12	9.0-15	6.6-9.0	0	0	0-4
	12-38	8.0-14	7.4-9.0	2-4	4.0-8.0	2-12
	38-62	8.0-14	7.4-9.0	0-1	2.0-4.0	2-12
Toll	0-15	1.0-7.0	6.6-7.8	0	0	0
	15-40	1.0-7.0	6.6-7.8	0	0	0
	40-60	1.0-7.0	6.6-7.8	0-2	0.0-4.0	0-2
254:						
Connleyhills	0-4	17-41	6.6-7.3	0	0	0
	4-11	17-41	6.6-7.3	0	0	0
	11-15	15-39	6.6-7.8	0	0.0-2.0	0
	15-22	28-42	6.6-7.8	0	0.0-2.0	0
	22-29	28-35	6.6-7.8	0	0.0-2.0	0
	29-32	35-61	6.6-7.8	0	0.0-2.0	0
	32-42	---	---	---	---	---
255:						
Connleyhills	0-4	19-41	6.6-7.3	0	0	0
	4-11	17-41	6.6-7.3	0	0	0
	11-15	15-39	6.6-7.8	0	0.0-2.0	0
	15-22	28-42	6.6-7.8	0	0.0-2.0	0
	22-29	28-35	6.6-7.8	0	0.0-2.0	0
	29-32	35-61	6.6-7.8	0	0.0-2.0	0
	32-42	---	---	---	---	---
256:						
Cooperdraw	0-2	13-18	7.4-7.8	0	0	0
	2-8	16-22	7.4-7.8	0	0	0
	8-14	22-30	7.4-8.4	1-3	0	0
	14-24	8.0-17	7.9-8.4	2-5	0	0
	24-60	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
256:						
Fertaline	0-2	10-13	6.6-7.8	0	0	0
	2-7	11-17	6.6-7.8	0	0	0
	7-19	17-25	6.6-8.4	0-1	0.0-2.0	0
	19-26	15-25	7.4-9.0	1-5	2.0-4.0	0-4
	26-28	---	---	---	---	---
257:						
Corral, low precipitation	0-3	5.0-9.0	6.6-7.8	0	0	0
	3-5	5.0-10	6.6-7.8	0	0	0
	5-13	10-18	6.6-7.8	0	0	0
	13-23	---	---	---	---	---
258:						
Coztur	0-3	5.0-10	7.4-7.8	0	0	0
	3-7	20-27	7.4-7.8	0	0.0-2.0	0-2
	7-13	20-27	7.4-7.8	0	0.0-2.0	0-2
	13-23	---	---	---	---	---
259:						
Crackedground	0-5	17-41	6.6-7.8	0	0	0
	5-13	17-39	6.6-7.8	0	0	0
	13-38	16-37	6.6-7.8	0	0	0
	38-43	15-35	6.6-7.8	0	0	0
	43-53	---	---	---	---	---
260:						
Crackedground	0-5	17-41	6.6-7.8	0	0	0
	5-13	17-39	6.6-7.8	0	0	0
	13-38	16-37	6.6-7.8	0	0	0
	38-43	15-35	6.6-7.8	0	0	0
	43-53	---	---	---	---	---
261:						
Crackedground	0-5	17-41	6.6-7.8	0	0	0
	5-13	17-39	6.6-7.8	0	0	0
	13-38	16-37	6.6-7.8	0	0	0
	38-43	15-35	6.6-7.8	0	0	0
	43-53	---	---	---	---	---
Kunceider	0-5	17-41	6.6-7.3	0	0	0
	5-9	17-39	6.6-7.3	0	0	0
	9-14	15-35	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
262:						
Crackedground	0-5	17-41	6.6-7.8	0	0	0
	5-13	17-39	6.6-7.8	0	0	0
	13-38	16-37	6.6-7.8	0	0	0
	38-43	15-35	6.6-7.8	0	0	0
	43-53	---	---	---	---	---
Milcan	0-2	17-39	6.6-7.8	0	0	0
	2-10	17-39	6.6-7.8	0	0	0
	10-34	15-35	6.6-8.4	0	0	0
	34-44	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
263:						
Crackedground--------	0-5	17-41	6.6-7.8	0	0	0
	5-13	17-39	6.6-7.8	0	0	0
	13-38	16-37	6.6-7.8	0	0	0
	38-43	15-35	6.6-7.8	0	0	0
	43-53	---	---	---	---	---
Milcan---------------	0-2	1.0-5.0	6.6-7.8	0	0	0
	2-10	17-39	6.6-7.8	0	0	0
	10-34	15-35	6.6-8.4	0	0	0
	34-44	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
264:						
Crackedground--------	0-5	17-41	6.6-7.8	0	0	0
	5-13	17-39	6.6-7.8	0	0	0
	13-38	16-37	6.6-7.8	0	0	0
	38-43	15-35	6.6-7.8	0	0	0
	43-53	---	---	---	---	---
Wegert---------------	0-2	19-41	6.6-7.3	0	0	0
	2-6	17-39	6.6-7.8	0	0	0
	6-27	15-35	7.4-7.8	0	0.0-2.0	0
	27-31	15-35	7.4-7.8	0	0.0-2.0	0
	31-41	---	---	---	---	---
266:						
Deppy----------------	0-4	10-15	7.9-8.4	0	0.0-2.0	1-3
	4-11	15-20	7.9-8.4	1-5	0.0-2.0	2-10
	11-24	---	---	---	---	---
	24-60	5.0-10	8.5-9.0	1-5	0	5-15
Rubble land----------	0-60	---	---	---	---	---
267:						
Deppy----------------	0-4	10-15	7.9-8.4	0	0.0-2.0	1-3
	4-11	15-20	7.9-8.4	1-5	0.0-2.0	2-10
	11-24	---	---	---	---	---
	24-60	5.0-10	8.5-9.0	1-5	0	5-15
Tumtum---------------	0-3	14-18	7.9-8.4	0	0	0
	3-14	18-24	7.9-8.4	0	0	0
	14-22	---	---	---	---	---
	22-60	3.0-10	7.9-8.4	0-1	0.0-2.0	0
268:						
Derallo--------------	0-1	17-41	6.1-7.3	0	0	0
	1-12	19-43	6.1-7.3	0	0	0
	12-36	17-41	6.6-7.8	0	0.0-2.0	0
	36-41	15-35	6.6-7.8	0	0.0-2.0	0
	41-51	---	---	---	---	---
Chesebro-------------	0-4	20-40	6.6-7.3	0	0	0
	4-24	20-45	6.6-7.8	0	0	0
	24-60	15-40	6.6-7.8	0	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
269:						
Derallo, north-------	0-1	17-43	6.1-7.3	0	0	0
	1-12	19-43	6.1-7.3	0	0	0
	12-36	17-41	6.6-7.8	0	0.0-2.0	0
	36-41	15-35	6.6-7.8	0	0.0-2.0	0
	41-51	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
270:						
Derallo, south-------	0-1	17-43	6.1-7.3	0	0	0
	1-12	19-43	6.1-7.3	0	0	0
	12-36	17-41	6.6-7.8	0	0.0-2.0	0
	36-41	15-35	6.6-7.8	0	0.0-2.0	0
	41-51	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
271:						
Diablopeak-----------	0-2	7.0-10	7.9-9.6	0	0.0-2.0	1-12
	2-6	8.0-13	7.9-9.0	0	0.0-2.0	1-8
	6-7	8.0-13	7.9-9.0	0	0.0-2.0	1-8
	7-12	25-39	8.5-9.6	0	4.0-8.0	13-30
	12-19	22-32	8.5-9.6	5-10	4.0-8.0	13-30
	19-29	---	---	---	---	---
Yankeewell-----------	0-3	7.0-10	7.4-9.0	0	0.0-2.0	0-4
	3-6	8.0-17	7.9-9.0	0	0.0-2.0	0-4
	6-11	18-24	7.9-9.0	1-3	4.0-8.0	13-30
	11-25	---	---	---	---	---
	25-35	---	---	---	---	---
272:						
Drakesflat-----------	0-2	14-21	6.6-7.8	0	0	0
	2-7	14-23	7.4-8.4	0	0	0
	7-16	24-32	7.4-8.4	0	0	0
	16-22	14-25	7.9-9.0	1-5	2.0-8.0	13-20
	22-32	---	---	---	---	---
273:						
Drakesflat-----------	0-2	14-21	6.6-7.8	0	0	0
	2-7	14-23	7.4-8.4	0	0	0
	7-16	24-32	7.4-8.4	0	0	0
	16-22	14-25	7.9-9.0	1-5	2.0-8.0	13-20
	22-32	---	---	---	---	---
274:						
Dune land------------	0-60	---	---	---	---	---
275:						
Dune land------------	0-60	---	---	---	---	---
Fossilake------------	0-1	15-35	9.1-11.0	2-6	16.0-30.0	30-100
	1-3	15-35	9.1-11.0	2-4	16.0-30.0	30-100
	3-15	15-35	9.1-11.0	2-4	16.0-30.0	30-100
	15-31	15-35	9.1-11.0	1-3	8.0-16.0	13-60
	31-43	15-35	8.5-9.0	3-7	8.0-16.0	13-30
	43-66	15-35	8.5-9.0	2-4	4.0-8.0	5-13
Salhouse-------------	0-5	15-35	7.9-9.0	0	2.0-8.0	5-30
	5-42	15-35	8.5-9.0	1-3	2.0-8.0	5-30
	42-61	10-35	7.9-9.0	0	4.0-8.0	13-30

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
276:						
Dune land------------	0-60	---	---	---	---	---
Morehouse------------	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
277:						
Dune land------------	0-60	---	---	---	---	---
Salhouse-------------	0-5	15-35	7.9-9.0	0	2.0-8.0	5-30
	5-42	15-35	8.5-9.0	1-3	2.0-8.0	5-30
	42-61	10-35	7.9-9.0	0	4.0-8.0	13-30
278:						
Dunres---------------	0-4	17-41	6.6-7.8	0	0	0
	4-8	17-39	6.6-7.8	0	0	0
	8-19	28-39	6.6-7.8	0	0	0
	19-32	---	---	---	---	---
	32-56	---	---	---	---	---
	56-60	---	---	---	---	---
279:						
Dunres, thick surface	0-4	17-41	6.6-7.8	0	0	0
	4-8	17-39	6.6-7.8	0	0	0
	8-19	28-39	6.6-7.8	0	0	0
	19-32	---	---	---	---	---
	32-56	---	---	---	---	---
	56-60	---	---	---	---	---
280:						
Dunres---------------	0-4	17-41	6.6-7.8	0	0	0
	4-8	17-39	6.6-7.8	0	0	0
	8-19	28-39	6.6-7.8	0	0	0
	19-32	---	---	---	---	---
	32-56	---	---	---	---	---
	56-60	---	---	---	---	---
281:						
Dunres---------------	0-4	17-41	6.6-7.8	0	0	0
	4-8	17-39	6.6-7.8	0	0	0
	8-19	28-39	6.6-7.8	0	0	0
	19-32	---	---	---	---	---
	32-56	---	---	---	---	---
	56-60	---	---	---	---	---
Henkle---------------	0-1	---	4.5-5.5	0	0	0
	1-6	19-43	6.6-7.3	0	0	0
	6-16	16-39	6.6-7.8	0	0	0
	16-20	16-37	6.6-7.8	0	0	0
	20-30	---	---	---	---	---
282:						
Dunres---------------	0-4	17-41	6.6-7.8	0	0	0
	4-8	17-39	6.6-7.8	0	0	0
	8-19	28-39	6.6-7.8	0	0	0
	19-32	---	---	---	---	---
	32-56	---	---	---	---	---
	56-60	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
282:						
Moonbeam-------------	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
283:						
Dunres---------------	0-4	17-41	6.6-7.8	0	0	0
	4-8	17-39	6.6-7.8	0	0	0
	8-19	28-39	6.6-7.8	0	0	0
	19-32	---	---	---	---	---
	32-56	---	---	---	---	---
	56-60	---	---	---	---	---
Moonbeam-------------	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
Nuss-----------------	0-3	6.0-13	6.1-7.8	0	0	0
	3-17	10-17	6.1-7.8	0	0	0
	17-27	---	---	---	---	---
284:						
Dunres---------------	0-4	17-41	6.6-7.8	0	0	0
	4-8	17-39	6.6-7.8	0	0	0
	8-19	28-39	6.6-7.8	0	0	0
	19-32	---	---	---	---	---
	32-56	---	---	---	---	---
	56-60	---	---	---	---	---
Murlose--------------	0-3	17-41	7.4-7.8	0	0	0
	3-11	17-41	7.4-7.8	0	0	0
	11-19	15-39	7.4-7.8	0	0	0
	19-22	---	---	0	0	0
	22-32	---	---	---	---	---
Nuss-----------------	0-1	---	4.5-5.5	0	0	0
	1-2	17-41	6.6-7.3	0	0	0
	2-8	17-39	6.6-7.3	0	0	0
	8-15	15-37	6.6-7.3	0	0	0
	15-19	---	---	---	---	---
	19-29	---	---	---	---	---
285:						
Dunres---------------	0-4	17-41	6.6-7.8	0	0	0
	4-8	17-39	6.6-7.8	0	0	0
	8-19	28-39	6.6-7.8	0	0	0
	19-32	---	---	---	---	---
	32-56	---	---	---	---	---
	56-60	---	---	---	---	---
Moonbeam-------------	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
286:						
Dunres	0-4	17-41	6.6-7.8	0	0	0
	4-8	17-39	6.6-7.8	0	0	0
	8-19	28-39	6.6-7.8	0	0	0
	19-32	---	---	---	---	---
	32-56	---	---	---	---	---
	56-60	---	---	---	---	---
Norcross, cobbly ashy loam surface	0-3	17-43	6.6-7.8	0	0	0
	3-6	17-41	6.6-7.8	0	0	0
	6-19	27-42	6.6-7.8	0	0.0-2.0	0-2
	19-21	---	---	---	---	---
	21-31	---	---	---	---	---
Norcross, very cobbly ashy fine sandy loam surface	0-3	17-43	6.6-7.8	0	0	0
	3-6	17-41	6.6-7.8	0	0	0
	6-19	27-42	6.6-7.8	0	0.0-2.0	0-2
	19-21	---	---	---	---	---
	21-31	---	---	---	---	---
287:						
Edemaps	0-3	8.0-17	7.4-7.8	0	0	0
	3-10	11-25	7.4-7.8	0	0	0
	10-19	24-28	7.4-8.4	0	0.0-2.0	0
	19-24	24-28	7.4-8.4	0	0.0-2.0	0
	24-26	---	---	---	---	---
	26-30	---	---	---	---	---
Pernty	0-3	6.0-15	6.6-7.8	0	0	0
	3-12	15-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
288:						
Embal	0-2	17-41	6.6-7.8	0	0	0
	2-6	17-39	6.6-7.8	0-5	0.0-2.0	0
	6-25	17-39	6.6-7.8	0-5	0.0-2.0	0
	25-34	15-37	7.4-8.4	2-5	2.0-4.0	0
	34-42	15-35	7.9-8.4	2-5	2.0-8.0	0
	42-60	15-35	7.9-8.4	2-5	2.0-8.0	0
289:						
Embal	0-2	17-41	6.6-7.8	0	0	0
	2-6	17-39	6.6-7.8	0-5	0.0-2.0	0
	6-25	17-39	6.6-7.8	0-5	0.0-2.0	0
	25-34	15-37	7.4-8.4	2-5	2.0-4.0	0
	34-42	15-35	7.9-8.4	2-5	2.0-8.0	0
	42-60	15-35	7.9-8.4	2-5	2.0-8.0	0
Paulina	0-22	19-43	7.4-7.8	0	0	0
	22-60	17-41	7.4-7.8	0	0	0
290:						
Enko	0-2	4.0-11	6.6-8.4	0	0.0-2.0	0
	2-11	3.0-10	6.6-8.4	0	0.0-5.0	0
	11-35	7.0-13	7.4-8.4	0	0.0-5.0	0
	35-60	7.0-13	7.4-9.0	2-5	2.0-5.0	0-15

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
291:						
Enko	0-2	7.0-17	6.6-8.4	0	0.0-2.0	0
	2-11	3.0-10	6.6-8.4	0	0.0-5.0	0
	11-35	7.0-13	7.4-8.4	0	0.0-5.0	0
	35-60	7.0-13	7.4-9.0	2-5	2.0-5.0	0-15
292:						
Enko	0-2	3.0-7.0	6.6-8.4	0	0.0-2.0	0
	2-11	3.0-10	6.6-8.4	0	0.0-5.0	0
	11-35	7.0-13	7.4-8.4	0	0.0-5.0	0
	35-60	7.0-13	7.4-9.0	2-5	2.0-5.0	0-15
293:						
Enko	0-2	3.0-7.0	6.6-8.4	0	0.0-2.0	0
	2-11	3.0-10	6.6-8.4	0	0.0-5.0	0
	11-35	7.0-13	7.4-8.4	0	0.0-5.0	0
	35-60	7.0-13	7.4-9.0	2-5	2.0-5.0	0-15
Catlow	0-3	3.0-8.0	7.4-8.4	0	0	0
	3-21	5.0-13	7.4-8.4	0	0	0
	21-30	3.0-8.0	7.4-8.4	0-1	0.0-2.0	0
	30-60	2.0-5.0	7.4-8.4	0-1	0.0-2.0	0
294:						
Enko	0-2	3.0-7.0	6.6-8.4	0	0.0-2.0	0
	2-11	3.0-10	6.6-8.4	0	0.0-5.0	0
	11-35	7.0-13	7.4-8.4	0	0.0-5.0	0
	35-60	7.0-13	7.4-9.0	2-5	2.0-5.0	0-15
McConnel	0-1	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	1-12	3.0-10	7.4-8.4	0-2	0.0-4.0	0-2
	12-18	3.0-10	7.4-9.0	0-5	0.0-12.0	0-15
	18-60	1.0-7.0	7.9-9.4	1-5	2.0-12.0	2-15
295:						
Erakatak	0-3	20-26	6.6-7.3	0	0	0
	3-11	14-29	6.6-7.3	0	0	0
	11-20	26-32	6.6-7.8	0	0	0
	20-27	26-32	6.6-7.8	0	0	0
	27-37	---	---	---	---	---
296:						
Erakatak	0-3	10-17	6.6-7.3	0	0	0
	3-11	14-29	6.6-7.3	0	0	0
	11-20	26-32	6.6-7.8	0	0	0
	20-27	26-32	6.6-7.8	0	0	0
	27-37	---	---	---	---	---
Carryback	0-2	15-20	6.6-7.8	0	0	0
	2-8	20-25	6.6-7.8	0	0	0
	8-15	30-40	7.4-7.8	0	0	0
	15-33	15-20	7.9-8.4	0-2	0.0-2.0	0
	33-43	---	---	---	---	---
297:						
Erakatak	0-3	7.0-22	6.6-7.3	0	0	0
	3-11	14-29	6.6-7.3	0	0	0
	11-20	26-32	6.6-7.8	0	0	0
	20-27	26-32	6.6-7.8	0	0	0
	27-37	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
297:						
Leevan, south	0-3	10-21	6.6-7.3	0	0	0
	3-7	14-24	6.6-7.8	0	0	0
	7-16	21-35	6.6-7.8	0	0	0
	16-31	28-42	6.6-7.8	0	0	0
	31-41	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
298:						
Erakatak	0-3	20-26	6.6-7.3	0	0	0
	3-11	14-29	6.6-7.3	0	0	0
	11-20	26-32	6.6-7.8	0	0	0
	20-27	26-32	6.6-7.8	0	0	0
	27-37	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
299:						
Erakatak	0-3	7.0-22	6.6-7.3	0	0	0
	3-11	14-29	6.6-7.3	0	0	0
	11-20	26-32	6.6-7.8	0	0	0
	20-27	26-32	6.6-7.8	0	0	0
	27-37	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---
300:						
Felcher, south	0-4	3.0-13	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---
Camptank	0-3	11-16	7.4-8.4	0	0	0
	3-6	10-16	7.4-8.4	0	0	0
	6-10	28-40	7.9-8.4	0	0	0
	10-17	22-33	7.9-8.4	0-1	0.0-2.0	0-5
	17-34	10-15	7.9-9.0	2-5	0.0-4.0	5-12
	34-41	5.0-12	7.9-9.0	1-3	0.0-4.0	5-12
	41-51	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
301:						
Felcher, south	0-4	9.0-13	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---
Fitzwater, north	0-3	7.0-19	6.6-7.8	0	0	0
	3-7	3.0-9.0	6.6-7.8	0	0	0
	7-33	5.0-15	6.6-7.8	0	0	0
	33-60	5.0-12	6.6-7.8	0	0	0
Rock outcrop	0-60	---	---	---	---	---
302:						
Felcher, south	0-4	3.0-13	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
302:						
Oreneva, north	0-2	4.0-11	6.6-7.8	0	0	0
	2-10	9.0-15	6.6-7.8	0	0	0
	10-21	9.0-15	7.4-8.4	0	0	0
	21-31	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
303:						
Felcher, south	0-4	9.0-13	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---
Riddleranch	0-8	10-17	7.4-7.8	0	0.0-2.0	0
	8-28	14-21	6.6-8.4	0	0.0-2.0	0-2
	28-38	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
304:						
Felcher, south	0-4	3.0-13	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
305:						
Felcher, south	0-4	3.0-13	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
306:						
Felcher, south	0-4	20-27	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
307:						
Felcher, south	0-4	14-22	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
Brezniak	0-3	13-23	6.6-7.3	0	0	0
	3-10	24-35	6.6-7.3	0	0	0
	10-20	---	---	---	---	---
308:						
Felcher, south	0-4	9.0-13	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
308:						
Rock outcrop	0-60	---	---	---	---	---
Westbutte, north	0-3	10-19	6.6-7.3	0	0	0
	3-11	13-25	6.6-7.3	0	0	0
	11-21	13-23	6.6-7.8	0	0	0
	21-31	---	---	---	---	---
309:						
Firelake	0-2	2.0-4.0	7.4-7.8	0	0	0
	2-7	4.0-8.0	7.4-7.8	0	0	0
	7-17	---	---	---	---	---
Enko	0-2	4.0-11	6.6-8.4	0	0.0-2.0	0
	2-11	3.0-10	6.6-8.4	0	0.0-5.0	0
	11-35	7.0-13	7.4-8.4	0	0.0-5.0	0
	35-60	7.0-13	7.4-9.0	2-5	2.0-5.0	0-15
310:						
Fitzwater, south	0-3	7.0-19	6.6-7.8	0	0	0
	3-7	3.0-9.0	6.6-7.8	0	0	0
	7-33	5.0-15	6.6-7.8	0	0	0
	33-60	5.0-12	6.6-7.8	0	0	0
311:						
Fitzwater, north	0-3	7.0-19	6.6-7.8	0	0	0
	3-7	3.0-9.0	6.6-7.8	0	0	0
	7-33	5.0-15	6.6-7.8	0	0	0
	33-60	5.0-12	6.6-7.8	0	0	0
Rock outcrop	0-60	---	---	---	---	---
312:						
Flagstaff	0-1	0.0-9.0	7.9-9.0	1-2	1.0-6.0	15-22
	1-3	3.0-7.0	8.5-9.5	1-5	20.0-40.0	15-110
	3-27	3.0-7.0	8.5-9.5	1-5	20.0-40.0	15-110
	27-60	1.0-7.0	7.9-9.0	1-5	10.0-30.0	15-90
313:						
Flagstaff, ashy very fine sandy loam surface	0-4	15-35	7.9-9.6	0	2.0-4.0	30-150
	4-12	15-35	7.9-9.6	0	4.0-30.0	60-150
	12-16	15-35	8.5-10.0	5-12	30.0-42.0	200-400
	16-43	15-35	8.5-10.0	1-12	30.0-42.0	250-700
	43-69	15-35	8.5-10.0	1-3	16.0-32.0	300-600
	69-80	15-35	8.5-10.0	0	16.0-32.0	300-600
Flagstaff, ashy sandy loam surface	0-4	15-35	7.9-9.6	0	2.0-4.0	30-150
	4-12	15-35	7.9-9.6	0	4.0-30.0	60-150
	12-16	15-35	8.5-10.0	5-12	30.0-42.0	200-400
	16-43	15-35	8.5-10.0	1-12	30.0-42.0	250-700
	43-69	15-35	8.5-10.0	1-3	16.0-32.0	300-600
	69-80	15-35	8.5-10.0	0	16.0-32.0	300-600

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
314:						
Flagstaff	0-4	15-35	7.9-9.6	0	2.0-4.0	30-150
	4-12	15-35	7.9-9.6	0	4.0-30.0	60-150
	12-16	15-35	8.5-10.0	5-12	30.0-42.0	200-400
	16-43	15-35	8.5-10.0	1-12	30.0-42.0	250-700
	43-69	15-35	8.5-10.0	1-3	16.0-32.0	300-600
	69-80	15-35	8.5-10.0	0	16.0-32.0	300-600
Playas	0-6	---	7.4-9.0	0-5	1.0-32.0	0-100
	6-60	---	7.4-9.0	0-5	0.0-32.0	0-100
315:						
Flagstaff	0-4	15-35	7.9-9.6	0	2.0-4.0	30-150
	4-12	15-35	7.9-9.6	0	4.0-30.0	60-150
	12-16	15-35	8.5-10.0	5-12	30.0-42.0	200-400
	16-43	15-35	8.5-10.0	1-12	30.0-42.0	250-700
	43-69	15-35	8.5-10.0	1-3	16.0-32.0	300-600
	69-80	15-35	8.5-10.0	0	16.0-32.0	300-600
Salhouse	0-5	15-35	7.9-9.0	0	2.0-8.0	5-30
	5-42	15-35	8.5-9.0	1-3	2.0-8.0	5-30
	42-61	10-35	7.9-9.0	0	4.0-8.0	13-30
316:						
Foleylake	0-2	7.0-13	7.4-7.8	0	0	0
	2-8	8.0-14	7.4-7.8	0	0	0
	8-18	28-35	7.4-8.4	0	0	0
	18-23	20-28	7.8-8.4	1-5	0.0-2.0	0
	23-27	---	---	---	---	---
	27-37	---	---	---	---	---
Anawalt	0-3	8.0-19	6.6-8.4	0	0	0
	3-7	20-42	6.6-8.4	0	0	0
	7-18	24-42	6.6-8.4	0-1	0.0-2.0	0
	18-28	---	---	---	---	---
317:						
Fort Rock	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
318:						
Fort Rock	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
319:						
Fort Rock	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
319:						
Bonnick	0-3	15-35	7.4-7.8	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-28	15-35	7.4-8.4	0	0	0
	28-42	15-35	7.4-8.4	0	0	0
	42-45	15-35	7.9-9.0	0	0.0-2.0	0
	45-60	0.0-1.0	7.9-9.0	0	0.0-2.0	0
320:						
Fort Rock	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
Lapham	0-2	15-35	6.1-7.3	0	0	0
	2-16	15-35	6.1-7.3	0	0	0
	16-20	15-35	6.1-7.3	0	0	0
	20-60	15-35	6.1-7.3	0	0	0
321:						
Fort Rock, warm	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
Lapham, warm	0-2	15-35	6.1-7.3	0	0	0
	2-16	15-35	6.1-7.3	0	0	0
	16-20	15-35	6.1-7.3	0	0	0
	20-60	15-35	6.1-7.3	0	0	0
322:						
Fort Rock	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
Morehouse	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
323:						
Fort Rock	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
Morehouse	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
324:						
Fort Rock, moist	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
Morehouse, moist	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
325:						
Fort Rock	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
Suckerflat	0-8	17-41	7.4-7.8	0	0.0-2.0	0
	8-18	17-41	7.4-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
326:						
Fossilake	0-1	15-35	9.1-11.0	2-6	16.0-30.0	30-100
	1-3	15-35	9.1-11.0	2-4	16.0-30.0	30-100
	3-15	15-35	9.1-11.0	2-4	16.0-30.0	30-100
	15-31	15-35	9.1-11.0	1-3	8.0-16.0	13-60
	31-43	15-35	8.5-9.0	3-7	8.0-16.0	13-30
	43-66	15-35	8.5-9.0	2-4	4.0-8.0	5-13
327:						
Fossilake, cool	0-1	15-35	9.1-11.0	2-6	16.0-30.0	30-100
	1-3	15-35	9.1-11.0	2-4	16.0-30.0	30-100
	3-15	15-35	9.1-11.0	2-4	16.0-30.0	30-100
	15-31	15-35	9.1-11.0	1-3	8.0-16.0	13-60
	31-43	15-35	8.5-9.0	3-7	8.0-16.0	13-30
	43-66	15-35	8.5-9.0	2-4	4.0-8.0	5-13
Salhouse, cool	0-5	15-35	7.9-9.0	0	2.0-8.0	5-30
	5-42	15-35	8.5-9.0	1-3	2.0-8.0	5-30
	42-61	10-35	7.9-9.0	0	4.0-8.0	13-30
328:						
Giranch	0-11	15-35	6.6-7.3	0	0.0-2.0	0
	11-23	15-34	6.6-7.8	0	0.0-2.0	0
	23-29	28-50	6.6-7.8	0	0.0-4.0	0
	29-33	18-28	6.6-7.8	0-2	0.0-4.0	0
	33-60	---	---	---	---	---
Meld	0-3	17-41	6.6-7.3	0	0	0
	3-16	17-41	6.6-7.3	0	0	0
	16-33	15-37	6.6-7.3	0	0	0
	33-40	---	---	---	---	---
329:						
Glencabin, south	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
330:						
Glencabin, north	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
331:						
Glencabin, south	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
332:						
Glencabin, south, dry	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
Glencabin, north, dry	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
333:						
Glencabin	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
334:						
Glencabin	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
335:						
Glencabin, gravelly ashy loamy sand surface	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
Glencabin, ashy loamy sand surface	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
Wanoga	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
336:						
Glencabin	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
Yapoah	0-1	---	4.0-5.5	0	0	0
	1-6	17-47	6.6-7.3	0	0	0
	6-16	17-43	6.6-7.3	0	0	0
	16-36	17-43	6.6-7.3	0	0	0
	36-61	15-35	6.6-7.3	0	0	0
Rock outcrop	0-60	---	---	---	---	---
338:						
Goodtack	0-3	17-41	6.6-7.8	0	0.0-2.0	0-2
	3-7	17-41	6.6-7.8	0	0.0-2.0	0-2
	7-19	15-37	7.4-7.8	0-2	0.0-4.0	0-4
	19-46	---	---	---	---	---
	46-56	---	---	---	---	---
339:						
Goodtack, low precipitation	0-3	17-41	6.6-7.8	0	0.0-2.0	0-2
	3-7	17-41	6.6-7.8	0	0.0-2.0	0-2
	7-19	15-37	7.4-7.8	0-2	0.0-4.0	0-4
	19-46	---	---	---	---	---
	46-56	---	---	---	---	---
340:						
Goodtack	0-3	17-41	6.6-7.8	0	0.0-2.0	0-2
	3-7	17-41	6.6-7.8	0	0.0-2.0	0-2
	7-19	15-37	7.4-7.8	0-2	0.0-4.0	0-4
	19-46	---	---	---	---	---
	46-56	---	---	---	---	---
Borobey	0-4	15-37	6.6-7.8	0	0	0
	4-12	17-41	6.6-7.8	0	0	0
	12-50	15-37	6.6-8.4	0	0.0-2.0	0-1
	50-68	15-37	6.6-8.4	0	0.0-2.0	0-1
341:						
Goodtack	0-3	17-41	6.6-7.8	0	0.0-2.0	0-2
	3-7	17-41	6.6-7.8	0	0.0-2.0	0-2
	7-19	15-37	7.4-7.8	0-2	0.0-4.0	0-4
	19-46	---	---	---	---	---
	46-56	---	---	---	---	---
Borobey	0-4	15-37	6.6-7.8	0	0	0
	4-12	17-41	6.6-7.8	0	0	0
	12-50	15-37	6.6-8.4	0	0.0-2.0	0-1
	50-68	15-37	6.6-8.4	0	0.0-2.0	0-1
342:						
Goodtack	0-3	17-41	6.6-7.8	0	0.0-2.0	0-2
	3-7	17-41	6.6-7.8	0	0.0-2.0	0-2
	7-19	15-37	7.4-7.8	0-2	0.0-4.0	0-4
	19-46	---	---	---	---	---
	46-56	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
342:						
Morehouse	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-60	15-37	7.9-9.0	0	0.0-2.0	0-1
343:						
Goodtack	0-3	17-41	6.6-7.8	0	0.0-2.0	0-2
	3-7	17-41	6.6-7.8	0	0.0-2.0	0-2
	7-19	15-37	7.4-7.8	0-2	0.0-4.0	0-4
	19-46	---	---	---	---	---
	46-56	---	---	---	---	---
Sliptrack	0-3	19-43	6.6-7.8	0	0	0
	3-11	19-43	6.6-7.8	0	0	0
	11-16	17-41	7.4-7.8	0	0	0
	16-22	15-37	7.4-7.8	0	0	0
	22-60	---	---	---	---	---
344:						
Gradon	0-3	6.0-13	6.6-7.8	0	0	0
	3-10	7.0-17	6.6-7.8	0	0	0
	10-22	12-18	6.6-7.8	0	0	0
	22-32	7.0-9.0	6.6-7.8	0-1	0.0-2.0	0
	32-48	---	---	---	---	---
	48-55	---	---	---	---	---
	55-62	2.0-8.0	7.4-8.4	0-1	0.0-2.0	0
345:						
Greenmountain	0-3	15-35	6.6-7.8	0	0	0
	3-13	15-35	6.6-7.8	0	0	0
	13-17	15-35	6.6-7.8	0	0	0
	17-24	15-35	6.6-7.8	0	0	0
	24-37	15-35	6.6-7.8	0	0	0
	37-42	---	---	---	---	---
	42-65	15-35	7.4-8.4	1-3	2.0-4.0	0-2
346:						
Greenmountain	0-3	15-35	6.6-7.8	0	0	0
	3-13	15-35	6.6-7.8	0	0	0
	13-17	15-35	6.6-7.8	0	0	0
	17-24	15-35	6.6-7.8	0	0	0
	24-37	15-35	6.6-7.8	0	0	0
	37-42	---	---	---	---	---
	42-65	15-35	7.4-8.4	1-3	2.0-4.0	0-2
Jacksplace	0-4	17-39	6.6-7.3	0	0	0
	4-9	17-39	6.6-7.3	0	0	0
	9-12	15-37	6.6-7.8	0	0	0
	12-20	15-35	6.6-7.8	0	0	0
	20-26	15-35	7.4-7.8	0	0	0
	26-30	---	---	---	---	---
347:						
Greenmountain	0-3	15-35	6.6-7.8	0	0	0
	3-13	15-35	6.6-7.8	0	0	0
	13-17	15-35	6.6-7.8	0	0	0
	17-24	15-35	6.6-7.8	0	0	0
	24-37	15-35	6.6-7.8	0	0	0
	37-42	---	---	---	---	---
	42-65	15-35	7.4-8.4	1-3	2.0-4.0	0-2

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
347:						
Lastcall	0-2	17-41	7.4-7.8	0	0	0
	2-7	17-41	7.4-7.8	0	0	0
	7-13	17-39	7.4-7.8	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-31	15-35	7.4-7.8	0	0	0
	31-41	---	---	---	---	---
348:						
Greenmountain	0-3	15-35	6.6-7.8	0	0	0
	3-13	15-35	6.6-7.8	0	0	0
	13-17	15-35	6.6-7.8	0	0	0
	17-24	15-35	6.6-7.8	0	0	0
	24-37	15-35	6.6-7.8	0	0	0
	37-42	---	---	---	---	---
	42-65	15-35	7.4-8.4	1-3	2.0-4.0	0-2
Weglike	0-3	19-41	6.6-7.3	0	0	0
	3-12	17-41	6.6-7.3	0	0	0
	12-22	13-21	7.4-7.8	0	0	0
	22-23	13-21	7.4-7.8	0	0	0
	23-33	---	---	---	---	---
349:						
Hackwood	0-11	20-30	6.6-7.3	0	0	0
	11-23	15-25	6.6-7.3	0	0	0
	23-48	10-20	6.6-7.3	0	0	0
	48-60	10-20	6.6-7.3	0	0	0
Westbutte, north	0-3	10-19	6.6-7.3	0	0	0
	3-11	13-25	6.6-7.3	0	0	0
	11-21	13-23	6.6-7.8	0	0	0
	21-31	---	---	---	---	---
350:						
Hager, cobbly loam surface	0-4	10-15	6.6-7.8	0	0	0
	4-8	10-14	6.6-7.8	0	0	0
	8-24	12-18	7.4-8.4	0-1	0.0-2.0	0
	24-37	7.0-13	7.4-8.4	1-2	2.0-4.0	0
	37-42	---	---	---	---	---
	42-52	---	---	---	---	---
Hager, extremely stony loam surface	0-4	10-15	6.6-7.8	0	0	0
	4-8	10-14	6.6-7.8	0	0	0
	8-24	12-18	7.4-8.4	0-1	0.0-2.0	0
	24-37	7.0-13	7.4-8.4	1-2	2.0-4.0	0
	37-42	---	---	---	---	---
	42-52	---	---	---	---	---
351:						
Hayespring	0-3	17-43	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
352:						
Hayespring	0-3	19-43	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
Dunres	0-4	17-41	6.6-7.8	0	0	0
	4-8	17-39	6.6-7.8	0	0	0
	8-19	28-39	6.6-7.8	0	0	0
	19-32	---	---	---	---	---
	32-56	---	---	---	---	---
	56-60	---	---	---	---	---
353:						
Hayespring	0-3	19-43	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
354:						
Hayespring	0-3	19-43	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
355:						
Hayespring, cobbly ashy loamy sand surface	0-3	19-43	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
Moonbeam, cobbly ashy loam surface	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
356:						
Hayespring, low precipitation-------	0-3	19-41	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
Moonbeam, low precipitation-------	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
357:						
Hayespring-----------	0-3	17-41	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
Senra----------------	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
358:						
Helphenstein---------	0-2	6.0-16	7.4-10.0	1-12	4.0-35.0	20-525
	2-8	6.0-16	7.4-10.0	1-10	4.0-50.0	20-525
	8-34	14-21	7.9-10.0	5-20	4.0-35.0	20-400
	34-60	7.0-17	7.9-8.9	2-20	0.0-2.0	2-100
359:						
Helphenstein, frequently ponded---	0-2	6.0-16	7.4-10.0	1-12	4.0-35.0	20-525
	2-8	6.0-16	7.4-10.0	1-10	4.0-50.0	20-525
	8-34	14-21	7.9-10.0	5-20	4.0-35.0	20-400
	34-60	7.0-17	7.9-8.9	2-20	0.0-2.0	2-100
360:						
Helphenstein---------	0-2	6.0-16	7.4-10.0	1-12	4.0-35.0	20-525
	2-8	6.0-16	7.4-10.0	1-10	4.0-50.0	20-525
	8-34	14-21	7.9-10.0	5-20	4.0-35.0	20-400
	34-60	7.0-17	7.9-8.9	2-20	0.0-2.0	2-100
361:						
Helphenstein---------	0-2	3.0-10	7.4-10.0	1-12	4.0-35.0	20-525
	2-8	6.0-16	7.4-10.0	1-10	4.0-50.0	20-525
	8-34	14-21	7.9-10.0	5-20	4.0-35.0	20-400
	34-60	7.0-17	7.9-8.9	2-20	0.0-2.0	2-100
Kewake---------------	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
362:						
Helphenstein, frequently ponded	0-4	15-35	7.9-8.4	0	0	0
	4-9	15-35	7.9-8.4	1-3	2.0-4.0	0
	9-18	15-35	7.9-9.0	1-3	2.0-4.0	0-2
	18-60	15-35	7.9-9.0	1-3	2.0-4.0	0-2
Legler	0-4	13-18	6.6-7.8	0	0	0
	4-8	10-24	7.4-8.4	0	0.0-2.0	0-2
	8-43	10-24	7.4-8.4	0-2	0.0-2.0	0-2
	43-61	13-24	7.4-8.4	0-5	0.0-4.0	0-2
Playas	0-6	---	7.4-9.0	0-5	1.0-32.0	0-100
	6-60	---	7.4-9.0	0-5	0.0-32.0	0-100
363:						
Helphenstein, frequently ponded	0-2	6.0-16	7.4-10.0	1-12	4.0-35.0	20-525
	2-8	6.0-16	7.4-10.0	1-10	4.0-50.0	20-525
	8-34	14-21	7.9-10.0	5-20	4.0-35.0	20-400
	34-60	7.0-17	7.9-8.9	2-20	0.0-2.0	2-100
Pitcheranch	0-8	24-40	7.4-8.4	1-2	0.0-6.0	0-4
	8-35	13-24	7.4-8.4	1-2	0.0-4.0	0-2
	35-62	8.0-22	7.4-7.8	1-2	0.0-4.0	0-2
Reese	0-4	7.0-18	9.1-9.6	5-15	16.0-32.0	100-200
	4-10	14-18	9.1-9.6	5-15	16.0-32.0	200-500
	10-33	14-21	9.1-9.6	15-30	2.0-16.0	30-140
	33-44	7.0-18	8.5-9.6	15-30	0.0-2.0	10-30
	44-60	14-18	8.5-9.6	15-30	0.0-2.0	5-30
364:						
Helphenstein	0-2	3.0-10	7.4-10.0	1-12	4.0-35.0	20-525
	2-8	6.0-16	7.4-10.0	1-10	4.0-50.0	20-525
	8-34	14-21	7.9-10.0	5-20	4.0-35.0	20-400
	34-60	7.0-17	7.9-8.9	2-20	0.0-2.0	2-100
Turpin	0-3	15-21	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
365:						
Henkle	0-1	---	4.5-5.5	0	0	0
	1-6	19-43	6.6-7.3	0	0	0
	6-16	16-39	6.6-7.8	0	0	0
	16-20	16-37	6.6-7.8	0	0	0
	20-30	---	---	---	---	---
Ludi	0-3	17-43	6.6-7.3	0	0	0
	3-12	15-41	6.6-7.3	0	0	0
	12-35	15-35	6.6-7.8	0	0	0
	35-60	0.0-0.0	6.6-7.3	0	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
366:						
Henkle	0-1	---	4.5-5.5	0	0	0
	1-6	19-43	6.6-7.3	0	0	0
	6-16	16-39	6.6-7.8	0	0	0
	16-20	16-37	6.6-7.8	0	0	0
	20-30	---	---	---	---	---
Wanoga	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
367:						
Henkle, dry	0-1	---	4.5-5.5	0	0	0
	1-6	19-43	6.6-7.3	0	0	0
	6-16	16-39	6.6-7.8	0	0	0
	16-20	16-37	6.6-7.8	0	0	0
	20-30	---	---	---	---	---
Wanoga, dry	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
368:						
Horning	0-4	15-35	7.4-8.4	0	2.0-4.0	1-13
	4-26	15-35	7.9-9.0	1-8	4.0-16.0	13-30
	26-40	15-35	7.9-9.6	1-8	4.0-16.0	30-90
	40-58	15-35	7.9-9.0	1-8	2.0-16.0	5-30
	58-85	15-35	8.5-10.5	5-15	8.0-32.0	30-150
369:						
Horning	0-4	15-35	7.4-8.4	0	2.0-4.0	1-13
	4-26	15-35	7.9-9.0	1-8	4.0-16.0	13-30
	26-40	15-35	7.9-9.6	1-8	4.0-16.0	30-90
	40-58	15-35	7.9-9.0	1-8	2.0-16.0	5-30
	58-85	15-35	8.5-10.5	5-15	8.0-32.0	30-150
Tonor	0-3	15-35	7.9-8.4	0	0	0
	3-11	15-35	7.9-9.0	0	0.0-4.0	4-13
	11-43	15-35	8.5-10.0	5-15	2.0-8.0	13-30
	43-60	15-35	7.9-8.4	1-3	2.0-4.0	0
370:						
Icene	0-3	8.0-17	7.4-10.0	0-3	2.0-16.0	5-25
	3-7	8.0-17	7.4-10.0	0-3	2.0-16.0	5-25
	7-41	8.0-21	7.9-10.0	2-10	30.0-50.0	90-120
	41-60	8.0-17	7.9-10.0	0-3	16.0-32.0	20-70
Playas	0-6	---	7.4-9.0	0-5	1.0-32.0	0-100
	6-60	---	7.4-9.0	0-5	0.0-32.0	0-100
371:						
Ipsoot	0-1	---	4.5-5.5	0	0	0
	1-5	15-35	6.6-7.3	0	0	0
	5-18	15-35	6.6-7.3	0	0	0
	18-31	15-35	6.6-7.3	0	0	0
	31-61	0.0-0.0	6.6-7.3	0	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
372:						
Ipsoot, north	0-1	---	4.5-5.5	0	0	0
	1-5	15-35	6.6-7.3	0	0	0
	5-18	15-35	6.6-7.3	0	0	0
	18-31	15-35	6.6-7.3	0	0	0
	31-61	0.0-0.0	6.6-7.3	0	0	0
373:						
Ipsoot, south	0-1	---	4.5-5.5	0	0	0
	1-5	15-35	6.6-7.3	0	0	0
	5-18	15-35	6.6-7.3	0	0	0
	18-31	15-35	6.6-7.3	0	0	0
	31-61	0.0-0.0	6.6-7.3	0	0	0
374:						
Jacksplace, moist	0-4	17-39	6.6-7.3	0	0	0
	4-9	17-39	6.6-7.3	0	0	0
	9-12	15-37	6.6-7.8	0	0	0
	12-20	15-35	6.6-7.8	0	0	0
	20-26	15-35	7.4-7.8	0	0	0
	26-30	---	---	---	---	---
375:						
Jacksplace	0-4	17-39	6.6-7.3	0	0	0
	4-9	17-39	6.6-7.3	0	0	0
	9-12	15-37	6.6-7.8	0	0	0
	12-20	15-35	6.6-7.8	0	0	0
	20-26	15-35	7.4-7.8	0	0	0
	26-30	---	---	---	---	---
376:						
Jacksplace	0-4	17-39	6.6-7.3	0	0	0
	4-9	17-39	6.6-7.3	0	0	0
	9-12	15-37	6.6-7.8	0	0	0
	12-20	15-35	6.6-7.8	0	0	0
	20-26	15-35	7.4-7.8	0	0	0
	26-30	---	---	---	---	---
377:						
Jacksplace	0-4	17-39	6.6-7.3	0	0	0
	4-9	17-39	6.6-7.3	0	0	0
	9-12	15-37	6.6-7.8	0	0	0
	12-20	15-35	6.6-7.8	0	0	0
	20-26	15-35	7.4-7.8	0	0	0
	26-30	---	---	---	---	---
378:						
Jacksplace	0-4	17-39	6.6-7.3	0	0	0
	4-9	17-39	6.6-7.3	0	0	0
	9-12	15-37	6.6-7.8	0	0	0
	12-20	15-35	6.6-7.8	0	0	0
	20-26	15-35	7.4-7.8	0	0	0
	26-30	---	---	---	---	---
Derallo	0-1	15-43	6.1-7.3	0	0	0
	1-12	19-43	6.1-7.3	0	0	0
	12-36	17-41	6.6-7.8	0	0.0-2.0	0
	36-41	15-35	6.6-7.8	0	0.0-2.0	0
	41-51	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
378:						
Glencabin	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
379:						
Jacksplace	0-4	17-39	6.6-7.3	0	0	0
	4-9	17-39	6.6-7.3	0	0	0
	9-12	15-37	6.6-7.8	0	0	0
	12-20	15-35	6.6-7.8	0	0	0
	20-26	15-35	7.4-7.8	0	0	0
	26-30	---	---	---	---	---
Senra	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
380:						
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
382:						
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
Helphenstein, frequently ponded	0-2	3.0-10	7.4-10.0	1-12	4.0-35.0	20-525
	2-8	6.0-16	7.4-10.0	1-10	4.0-50.0	20-525
	8-34	14-21	7.9-10.0	5-20	4.0-35.0	20-400
	34-60	7.0-17	7.9-8.9	2-20	0.0-2.0	2-100
383:						
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
Helphenstein, dry	0-2	6.0-16	7.4-10.0	1-12	4.0-35.0	20-525
	2-8	6.0-16	7.4-10.0	1-10	4.0-50.0	20-525
	8-34	14-21	7.9-10.0	5-20	4.0-35.0	20-400
	34-60	7.0-17	7.9-8.9	2-20	0.0-2.0	2-100
384:						
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
384:						
Icene	0-3	8.0-17	7.4-10.0	0-3	2.0-16.0	5-25
	3-7	8.0-17	7.4-10.0	0-3	2.0-16.0	5-25
	7-41	8.0-21	7.9-10.0	2-10	30.0-50.0	90-120
	41-60	8.0-17	7.9-10.0	0-3	16.0-32.0	20-70
385:						
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
Ozamis	0-10	30-41	7.9-8.4	0	4.0-16.0	0
	10-34	14-39	7.4-8.4	0	2.0-4.0	0
	34-36	1.0-3.0	6.6-7.8	0	0.0-2.0	0
	36-60	7.0-22	6.6-8.4	0	0.0-7.0	0
Reese	0-4	7.0-18	9.1-9.6	5-15	16.0-32.0	100-200
	4-10	14-18	9.1-9.6	5-15	16.0-32.0	200-500
	10-33	14-21	9.1-9.6	15-30	2.0-16.0	30-140
	33-44	7.0-18	8.5-9.6	15-30	0.0-2.0	10-30
	44-60	14-18	8.5-9.6	15-30	0.0-2.0	5-30
386:						
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
Turpin	0-3	3.0-13	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
387:						
Kewake, sodic	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
Turpin, sodic	0-3	3.0-13	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
388:						
Krackle, north	0-4	20-30	6.6-7.3	0	0	0
	4-15	20-30	6.6-7.3	0	0	0
	15-30	20-30	6.6-7.3	0	0	0
	30-40	---	---	---	---	---
Krackle, south	0-4	20-30	6.6-7.3	0	0	0
	4-15	20-30	6.6-7.3	0	0	0
	15-30	20-30	6.6-7.3	0	0	0
	30-40	---	---	---	---	---
389:						
Kunceider	0-5	17-41	6.6-7.3	0	0	0
	5-9	17-39	6.6-7.3	0	0	0
	9-14	15-35	6.6-7.8	0	0	0
	14-24	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
390:						
Kunceider	0-5	17-41	6.6-7.3	0	0	0
	5-9	17-39	6.6-7.3	0	0	0
	9-14	15-35	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
Fort Rock	0-5	17-39	6.1-7.8	0	0	0
	5-16	17-38	6.6-7.8	0	0	0
	16-28	15-36	7.4-8.4	0-1	0.0-2.0	0
	28-35	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-5
	35-39	1.0-5.0	7.9-9.0	0-1	0.0-2.0	0-7
	39-60	1.0-3.0	7.9-9.0	0-2	2.0-4.0	0-10
391:						
Kunceider	0-5	17-41	6.6-7.3	0	0	0
	5-9	17-39	6.6-7.3	0	0	0
	9-14	15-35	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
392:						
Kunceider	0-5	17-41	6.6-7.3	0	0	0
	5-9	17-39	6.6-7.3	0	0	0
	9-14	15-35	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
Wegert	0-2	19-41	6.6-7.3	0	0	0
	2-6	17-39	6.6-7.8	0	0	0
	6-27	15-35	7.4-7.8	0	0.0-2.0	0
	27-31	15-35	7.4-7.8	0	0.0-2.0	0
	31-41	---	---	---	---	---
393:						
Laidlaw	0-1	---	4.5-5.5	0	0	0
	1-5	17-43	6.6-7.3	0	0	0
	5-13	15-39	6.6-7.3	0	0	0
	13-31	15-39	6.6-7.3	0	0	0
	31-37	15-35	6.6-7.3	0	0	0
	37-50	15-35	6.6-7.3	0	0	0
	50-60	15-35	6.6-7.8	0	0	0
394:						
Laidlaw	0-1	---	4.5-5.5	0	0	0
	1-5	17-43	6.6-7.3	0	0	0
	5-13	15-39	6.6-7.3	0	0	0
	13-31	15-39	6.6-7.3	0	0	0
	31-37	15-35	6.6-7.3	0	0	0
	37-50	15-35	6.6-7.3	0	0	0
	50-60	15-35	6.6-7.8	0	0	0
395:						
Laidlaw, dry	0-1	---	4.5-5.5	0	0	0
	1-5	17-43	6.6-7.3	0	0	0
	5-13	15-39	6.6-7.3	0	0	0
	13-31	15-39	6.6-7.3	0	0	0
	31-37	15-35	6.6-7.3	0	0	0
	37-50	15-35	6.6-7.3	0	0	0
	50-60	15-35	6.6-7.8	0	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
395:						
Wanoga, dry	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
397:						
Lapham	0-2	17-41	6.1-7.3	0	0	0
	2-16	15-35	6.1-7.3	0	0	0
	16-20	15-35	6.1-7.3	0	0	0
	20-60	15-35	6.1-7.3	0	0	0
398:						
Lapine, north	0-4	20-30	5.6-7.3	0	0	0
	4-12	10-20	5.6-7.3	0	0	0
	12-56	5.0-15	6.1-7.8	0	0	0
	56-60	10-24	6.1-7.8	0	0	0
399:						
Lapine	0-4	20-30	5.6-7.3	0	0	0
	4-12	10-20	5.6-7.3	0	0	0
	12-56	5.0-15	6.1-7.8	0	0	0
	56-60	10-24	6.1-7.8	0	0	0
400:						
Lapine	0-4	20-30	5.6-7.3	0	0	0
	4-12	10-20	5.6-7.3	0	0	0
	12-56	5.0-15	6.1-7.8	0	0	0
	56-60	10-24	6.1-7.8	0	0	0
401:						
Lastcall	0-2	17-41	7.4-7.8	0	0	0
	2-7	17-41	7.4-7.8	0	0	0
	7-13	17-39	7.4-7.8	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-31	15-35	7.4-7.8	0	0	0
	31-41	---	---	---	---	---
402:						
Lastcall, gently sloping	0-2	17-41	7.4-7.8	0	0	0
	2-7	17-41	7.4-7.8	0	0	0
	7-13	17-39	7.4-7.8	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-31	15-35	7.4-7.8	0	0	0
	31-41	---	---	---	---	---
Lastcall, nearly level	0-2	17-41	7.4-7.8	0	0	0
	2-7	17-41	7.4-7.8	0	0	0
	7-13	17-39	7.4-7.8	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-31	15-35	7.4-7.8	0	0	0
	31-41	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
403:						
Lastcall	0-2	17-41	7.4-7.8	0	0	0
	2-7	17-41	7.4-7.8	0	0	0
	7-13	17-39	7.4-7.8	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-31	15-35	7.4-7.8	0	0	0
	31-41	---	---	---	---	---
Hayespring	0-3	19-43	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
404:						
Lastcall	0-2	17-41	7.4-7.8	0	0	0
	2-7	17-41	7.4-7.8	0	0	0
	7-13	17-39	7.4-7.8	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-31	15-35	7.4-7.8	0	0	0
	31-41	---	---	---	---	---
Hayespring	0-3	17-41	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
405:						
Lastcall	0-2	17-41	7.4-7.8	0	0	0
	2-7	17-41	7.4-7.8	0	0	0
	7-13	17-39	7.4-7.8	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-31	15-35	7.4-7.8	0	0	0
	31-41	---	---	---	---	---
Jacksplace	0-4	17-39	6.6-7.3	0	0	0
	4-9	17-39	6.6-7.3	0	0	0
	9-12	15-37	6.6-7.8	0	0	0
	12-20	15-35	6.6-7.8	0	0	0
	20-26	15-35	7.4-7.8	0	0	0
	26-30	---	---	---	---	---
Embal	0-2	17-41	6.6-7.8	0	0	0
	2-6	17-39	6.6-7.8	0-5	0.0-2.0	0
	6-25	17-39	6.6-7.8	0-5	0.0-2.0	0
	25-34	15-37	7.4-8.4	2-5	2.0-4.0	0
	34-42	15-35	7.9-8.4	2-5	2.0-8.0	0
	42-60	15-35	7.9-8.4	2-5	2.0-8.0	0
407:						
Lastcall	0-2	17-41	7.4-7.8	0	0	0
	2-7	17-41	7.4-7.8	0	0	0
	7-13	17-39	7.4-7.8	0	0	0
	13-21	15-35	7.4-7.8	0	0	0
	21-31	15-35	7.4-7.8	0	0	0
	31-41	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
407:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
408:						
Leevan	0-3	13-17	7.4-7.8	0	0.0-2.0	0-2
	3-16	16-24	7.4-7.8	0	0	0
	16-22	13-17	7.4-7.8	0	0.0-2.0	0-2
	22-32	---	---	---	---	---
Fitzwater, south	0-3	7.0-19	6.6-7.8	0	0	0
	3-7	3.0-9.0	6.6-7.8	0	0	0
	7-33	5.0-15	6.6-7.8	0	0	0
	33-60	5.0-12	6.6-7.8	0	0	0
Chen	0-24	13-20	7.4-7.8	0	0	0
	24-31	13-18	7.9-8.4	0-1	0.0-2.0	0
	31-41	7.0-13	7.9-8.4	1-2	2.0-4.0	0
	41-51	---	---	---	---	---
409:						
Leevan, north	0-3	10-21	6.6-7.3	0	0	0
	3-7	14-24	6.6-7.8	0	0	0
	7-16	21-35	6.6-7.8	0	0	0
	16-31	28-42	6.6-7.8	0	0	0
	31-41	---	---	---	---	---
Lambring, north	0-5	8.0-22	6.6-7.8	0	0	0
	5-20	9.0-17	6.6-7.8	0	0	0
	20-50	3.0-10	6.6-7.8	0	0	0
	50-60	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
410:						
Legler	0-4	20-27	6.6-7.8	0	0	0
	4-8	10-24	7.4-8.4	0	0.0-2.0	0-2
	8-43	10-24	7.4-8.4	0-2	0.0-2.0	0-2
	43-61	13-24	7.4-8.4	0-5	0.0-4.0	0-2
411:						
Bridgewell	0-7	13-17	7.4-7.8	0	0	0
	7-12	14-21	7.4-7.8	0	0.0-2.0	0
	12-60	7.0-13	7.4-7.8	0	0.0-2.0	0
Legler	0-4	13-18	6.6-7.8	0	0	0
	4-8	10-24	7.4-8.4	0	0.0-2.0	0-2
	8-43	10-24	7.4-8.4	0-2	0.0-2.0	0-2
	43-61	13-24	7.4-8.4	0-5	0.0-4.0	0-2
412:						
Bridgewell	0-7	13-17	7.4-7.8	0	0	0
	7-12	14-21	7.4-7.8	0	0.0-2.0	0
	12-60	7.0-13	7.4-7.8	0	0.0-2.0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
412:						
Chancelakes	0-1	10-31	7.4-8.4	0	0	0
	1-10	25-32	7.4-9.0	0	0	0
	10-29	25-39	7.9-9.0	2-5	2.0-4.0	0-2
	29-58	21-42	7.9-9.0	2-5	2.0-4.0	0-2
	58-63	39-60	7.9-9.0	1-3	2.0-4.0	0-2
413:						
Lithic Haploxerolls, cool	0-2	7.0-37	6.6-8.4	0-1	0.0-2.0	0
	2-11	7.0-37	6.6-8.4	0-2	0.0-2.0	0-2
	11-21	---	---	---	---	---
Lava flows	0-60	---	---	---	---	---
414:						
Lithic Haploxerolls, dry	0-2	17-39	6.6-8.4	0-1	0.0-2.0	0
	2-11	7.0-37	6.6-8.4	0-2	0.0-2.0	0-2
	11-21	---	---	---	---	---
Lava flows	0-60	---	---	---	---	---
415:						
Locane	0-2	18-21	6.6-7.8	0	0	0
	2-10	18-21	6.6-7.8	0	0	0
	10-18	24-35	7.4-8.4	0-2	0	0
	18-28	---	---	---	---	---
416:						
Locane	0-2	18-21	6.6-7.8	0	0	0
	2-10	18-21	6.6-7.8	0	0	0
	10-18	24-35	7.4-8.4	0-2	0	0
	18-28	---	---	---	---	---
Anawalt	0-3	8.0-19	6.6-8.4	0	0	0
	3-7	20-42	6.6-8.4	0	0	0
	7-18	24-42	6.6-8.4	0-1	0.0-2.0	0
	18-28	---	---	---	---	---
417:						
Locane	0-2	3.0-10	6.6-7.8	0	0	0
	2-10	18-21	6.6-7.8	0	0	0
	10-18	24-35	7.4-8.4	0-2	0	0
	18-28	---	---	---	---	---
Deseed	0-2	7.0-13	6.6-7.8	0	0	0
	2-6	10-15	6.6-7.8	0	0	0
	6-11	24-42	6.6-7.8	0	0.0-2.0	0-2
	11-17	24-42	6.6-7.8	0	0.0-2.0	0-2
	17-24	21-27	6.6-7.8	0-2	0.0-2.0	0-2
	24-34	---	---	---	---	---
418:						
Locolake	0-2	4.0-7.0	7.9-9.6	0	---	0-5
	2-4	5.0-8.0	7.9-9.6	0	---	0-10
	4-7	16-20	8.5-9.6	0-1	---	13-30
	7-12	13-17	8.5-9.6	1-5	---	30-60
	12-19	10-13	8.5-9.6	1-5	---	30-60
	19-23	---	8.5-9.6	---	---	---
	23-33	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
419:						
Locolake	0-2	4.0-7.0	7.9-9.6	0	2.0-4.0	0-5
	2-4	5.0-8.0	7.9-9.6	0	---	0-10
	4-7	16-20	8.5-9.6	0-1	---	13-30
	7-12	13-17	8.5-9.6	1-5	---	30-60
	12-19	10-13	8.5-9.6	1-5	---	30-60
	19-23	---	8.5-9.6	---	---	---
	23-33	---	---	---	---	---
McConnel	0-1	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	1-12	3.0-10	7.4-8.4	0-2	0.0-4.0	0-2
	12-18	3.0-10	7.4-9.0	0-5	0.0-12.0	0-15
	18-60	1.0-7.0	7.9-9.4	1-5	2.0-12.0	2-15
420:						
Lostforest	0-2	15-35	7.4-7.8	0	0	0
	2-5	15-35	7.4-7.8	0	0	0
	5-11	15-35	7.4-7.8	0	0	0
	11-18	15-35	7.4-8.4	1-3	0.0-2.0	0
	18-22	15-35	7.4-8.4	1-3	2.0-4.0	0
	22-32	---	---	---	---	---
Sandrock	0-3	15-35	6.6-7.8	0	0	0
	3-8	15-35	6.6-7.8	0	0	0
	8-12	15-35	6.6-7.8	0	0.0-2.0	0
	12-22	---	---	---	---	---
Morehouse	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
422:						
Ludi	0-3	17-43	6.6-7.3	0	0	0
	3-12	15-41	6.6-7.3	0	0	0
	12-35	15-35	6.6-7.8	0	0	0
	35-60	0.0-0.0	6.6-7.3	0	0	0
423:						
Ludi, low precipitation, north	0-3	17-43	6.6-7.3	0	0	0
	3-12	15-41	6.6-7.3	0	0	0
	12-35	15-35	6.6-7.8	0	0	0
	35-60	0.0-0.0	6.6-7.3	0	0	0
424:						
Ludi, low precipitation, south	0-3	17-43	6.6-7.3	0	0	0
	3-12	15-41	6.6-7.3	0	0	0
	12-35	15-35	6.6-7.8	0	0	0
	35-60	0.0-0.0	6.6-7.3	0	0	0
425:						
Ludi, low precipitation, north	0-3	17-43	6.6-7.3	0	0	0
	3-12	15-41	6.6-7.3	0	0	0
	12-35	15-35	6.6-7.8	0	0	0
	35-60	0.0-0.0	6.6-7.3	0	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
426:						
Ludi, low precipitation, south	0-3	17-43	6.6-7.3	0	0	0
	3-12	15-41	6.6-7.3	0	0	0
	12-35	15-35	6.6-7.8	0	0	0
	35-60	0.0-0.0	6.6-7.3	0	0	0
427:						
Ludi	0-3	17-43	6.6-7.3	0	0	0
	3-12	15-41	6.6-7.3	0	0	0
	12-35	15-35	6.6-7.8	0	0	0
	35-60	0.0-0.0	6.6-7.3	0	0	0
428:						
Ludi, south	0-3	17-43	6.6-7.3	0	0	0
	3-12	15-41	6.6-7.3	0	0	0
	12-35	15-35	6.6-7.8	0	0	0
	35-60	0.0-0.0	6.6-7.3	0	0	0
Glassbutte	0-4	15-35	6.6-7.8	0	0	0
	4-12	15-35	6.6-7.8	0	0	0
	12-22	15-35	7.4-7.8	0	0	0
	22-36	15-35	7.4-7.8	0-1	0.0-2.0	0
	36-60	0.0-0.0	6.6-7.3	0	0	0
Ludi, north	0-3	17-43	6.6-7.3	0	0	0
	3-12	15-41	6.6-7.3	0	0	0
	12-35	15-35	6.6-7.8	0	0	0
	35-60	0.0-0.0	6.6-7.3	0	0	0
429:						
Ludi	0-3	17-43	6.6-7.3	0	0	0
	3-12	15-41	6.6-7.3	0	0	0
	12-35	15-35	6.6-7.8	0	0	0
	35-60	0.0-0.0	6.6-7.3	0	0	0
Glassbutte	0-4	15-35	6.6-7.8	0	0	0
	4-12	15-35	6.6-7.8	0	0	0
	12-22	15-35	7.4-7.8	0	0	0
	22-36	15-35	7.4-7.8	0-1	0.0-2.0	0
	36-60	0.0-0.0	6.6-7.3	0	0	0
430:						
Lyeflat	0-2	15-35	8.5-8.9	0	0.0-16.0	0-20
	2-15	4.0-8.0	7.4-8.4	0-1	2.0-20.0	2-20
	15-22	4.0-8.0	7.4-8.4	0	2.0-16.0	2-15
	22-32	---	---	---	---	---
431:						
Lyeflat	0-3	8.0-13	7.9-10.0	2-6	2.0-8.0	5-30
	3-11	8.0-13	8.5-10.0	2-6	4.0-8.0	13-30
	11-21	---	---	---	---	---
432:						
Lyeflat, gravelly sandy loam surface	0-3	8.0-13	7.9-10.0	2-6	2.0-8.0	5-30
	3-11	8.0-13	8.5-10.0	2-6	4.0-8.0	13-30
	11-21	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
432:						
Lyeflat, very cobbly sandy loam surface	0-3	8.0-13	7.9-10.0	2-6	2.0-8.0	5-30
	3-11	8.0-13	8.5-10.0	2-6	4.0-8.0	13-30
	11-21	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
433:						
Lyeflat	0-3	8.0-13	7.9-10.0	2-6	2.0-8.0	5-30
	3-11	8.0-13	8.5-10.0	2-6	4.0-8.0	13-30
	11-21	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
434:						
McConnel	0-1	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	1-12	3.0-10	7.4-8.4	0-2	0.0-4.0	0-2
	12-18	3.0-10	7.4-9.0	0-5	0.0-12.0	0-15
	18-60	1.0-7.0	7.9-9.4	1-5	2.0-12.0	2-15
435:						
McConnel, sodic substratum	0-1	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	1-12	3.0-10	7.4-8.4	0-2	0.0-4.0	0-2
	12-18	3.0-10	7.4-9.0	0-5	0.0-12.0	0-15
	18-60	1.0-7.0	7.9-9.4	1-5	2.0-12.0	2-15
436:						
McConnel	0-1	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	1-12	3.0-10	7.4-8.4	0-2	0.0-4.0	0-2
	12-18	3.0-10	7.4-9.0	0-5	0.0-12.0	0-15
	18-60	1.0-7.0	7.9-9.4	1-5	2.0-12.0	2-15
437:						
McConnel	0-1	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	1-12	3.0-10	7.4-8.4	0-2	0.0-4.0	0-2
	12-18	3.0-10	7.4-9.0	0-5	0.0-12.0	0-15
	18-60	1.0-7.0	7.9-9.4	1-5	2.0-12.0	2-15
438:						
McConnel	0-1	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	1-12	3.0-10	7.4-8.4	0-2	0.0-4.0	0-2
	12-18	3.0-10	7.4-9.0	0-5	0.0-12.0	0-15
	18-60	1.0-7.0	7.9-9.4	1-5	2.0-12.0	2-15
Davey	0-3	3.0-13	6.6-7.8	0	0	0
	3-23	3.0-8.0	6.6-8.4	0	0	0
	23-60	1.0-5.0	7.4-9.0	0-1	0.0-2.0	0-2
439:						
McConnel	0-1	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	1-12	3.0-10	7.4-8.4	0-2	0.0-4.0	0-2
	12-18	3.0-10	7.4-9.0	0-5	0.0-12.0	0-15
	18-60	1.0-7.0	7.9-9.4	1-5	2.0-12.0	2-15
Poorjug, overblown	0-13	3.0-7.0	7.4-7.8	0	0.0-2.0	0-2
	13-19	13-17	7.4-7.8	0	0.0-2.0	0-2
	19-29	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
440:						
McConnel	0-1	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	1-12	3.0-10	7.4-8.4	0-2	0.0-4.0	0-2
	12-18	3.0-10	7.4-9.0	0-5	0.0-12.0	0-15
	18-60	1.0-7.0	7.9-9.4	1-5	2.0-12.0	2-15
Turpin	0-4	3.0-7.0	7.9-8.4	0-1	0.0-2.0	0-1
	4-12	3.0-7.0	7.9-8.4	1-2	0.0-4.0	0-1
	12-62	3.0-7.0	8.5-9.6	1-3	4.0-22.0	13-100
441:						
McNye	0-7	3.0-12	7.4-7.8	0-1	0.0-2.0	0
	7-16	3.0-10	7.9-8.4	1-3	0.0-4.0	0-2
	16-42	1.0-5.0	7.4-8.4	0-2	0.0-2.0	0
	42-52	---	---	---	---	---
Wildhill	0-2	7.0-10	7.9-9.0	0	0.0-2.0	0-5
	2-9	8.0-13	7.9-9.0	0	0.0-2.0	0-5
	9-14	14-24	9.0-9.6	0-2	0.0-2.0	10-30
	14-25	14-21	9.0-9.6	1-2	0.0-2.0	5-30
	25-35	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
442:						
Meld	0-3	17-41	6.6-7.3	0	0	0
	3-16	17-41	6.6-7.3	0	0	0
	16-33	15-37	6.6-7.3	0	0	0
	33-40	---	---	---	---	---
Giranch	0-11	15-35	6.6-7.3	0	0.0-2.0	0
	11-23	15-34	6.6-7.8	0	0.0-2.0	0
	23-29	28-50	6.6-7.8	0	0.0-4.0	0
	29-33	18-28	6.6-7.8	0-2	0.0-4.0	0
	33-60	---	---	---	---	---
443:						
Menbo, dry	0-3	15-35	6.6-7.3	0	0	0
	3-8	15-35	6.6-7.3	0	0	0
	8-26	24-35	6.6-7.8	0	0	0
	26-36	---	---	---	---	---
444:						
Merlin	0-4	13-23	6.6-7.8	0	0	0
	4-7	22-31	6.6-7.8	0	0	0
	7-18	35-49	6.6-7.8	0	0	0
	18-28	---	---	---	---	---
445:						
Mesman	0-2	4.0-11	7.4-8.9	0-2	2.0-8.0	5-30
	2-7	6.0-10	7.4-8.9	0-2	2.0-8.0	5-30
	7-26	11-21	7.9-9.0	0-5	4.0-40.0	13-70
	26-72	7.0-13	7.9-9.0	1-5	16.0-50.0	20-70
446:						
Mesman, slightly alkaline	0-2	4.0-11	7.4-8.9	0-2	2.0-8.0	5-30
	2-7	6.0-10	7.4-8.9	0-2	2.0-8.0	5-30
	7-26	11-21	7.9-9.0	0-5	4.0-40.0	13-70
	26-72	7.0-13	7.9-9.0	1-5	16.0-50.0	20-70

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
447:						
Mesman	0-2	4.0-9.0	7.4-8.9	0-2	2.0-8.0	5-30
	2-7	6.0-10	7.4-8.9	0-2	2.0-8.0	5-30
	7-26	11-21	7.9-9.0	0-5	4.0-40.0	13-70
	26-72	7.0-13	7.9-9.0	1-5	16.0-50.0	20-70
McConnel	0-1	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	1-12	3.0-10	7.4-8.4	0-2	0.0-4.0	0-2
	12-18	3.0-10	7.4-9.0	0-5	0.0-12.0	0-15
	18-60	1.0-7.0	7.9-9.4	1-5	2.0-12.0	2-15
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
448:						
Milcan	0-2	17-39	6.6-7.8	0	0	0
	2-10	17-39	6.6-7.8	0	0	0
	10-34	15-35	6.6-8.4	0	0	0
	34-44	---	---	---	---	---
449:						
Milcan	0-2	17-39	6.6-7.8	0	0	0
	2-10	17-39	6.6-7.8	0	0	0
	10-34	15-35	6.6-8.4	0	0	0
	34-44	---	---	---	---	---
Jacksplace	0-4	17-39	6.6-7.3	0	0	0
	4-9	17-39	6.6-7.3	0	0	0
	9-12	15-37	6.6-7.8	0	0	0
	12-20	15-35	6.6-7.8	0	0	0
	20-26	15-35	7.4-7.8	0	0	0
	26-30	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
450:						
Millenium	0-3	17-41	7.4-7.8	0	0	0
	3-9	17-41	7.4-7.8	0	0	0
	9-22	15-37	7.4-7.8	0	0	0
	22-30	15-35	7.4-7.8	0	0	0
	30-47	15-35	7.4-7.8	0	0.0-2.0	0
	47-65	15-35	7.4-7.8	0-1	0	0
451:						
Millenium, basin floor	0-3	17-41	7.4-7.8	0	0	0
	3-9	17-41	7.4-7.8	0	0	0
	9-22	15-37	7.4-7.8	0	0	0
	22-30	15-35	7.4-7.8	0	0	0
	30-47	15-35	7.4-7.8	0	0.0-2.0	0
	47-65	15-35	7.4-7.8	0-1	0	0
452:						
Millenium	0-3	17-41	7.4-7.8	0	0	0
	3-9	17-41	7.4-7.8	0	0	0
	9-22	15-37	7.4-7.8	0	0	0
	22-30	15-35	7.4-7.8	0	0	0
	30-47	15-35	7.4-7.8	0	0.0-2.0	0
	47-65	15-35	7.4-7.8	0-1	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
452:						
Stauffer	0-8	17-41	6.6-7.8	0	0.0-2.0	0
	8-26	17-37	7.4-7.8	0	0.0-2.0	0-2
	26-45	15-35	7.4-7.8	0	0.0-4.0	0-2
	45-66	15-35	7.4-7.8	0	0.0-6.0	0-6
Raztack	0-4	15-35	6.6-7.3	0	0.0-2.0	0
	4-14	15-35	6.6-7.8	0	0.0-2.0	0
	14-33	29-42	7.4-7.8	0	0.0-2.0	0
	33-44	17-22	7.4-7.8	0	0.0-2.0	0
	44-50	4.0-10	7.4-7.8	0	0.0-2.0	0
	50-70	4.0-24	7.4-7.8	0	0.0-4.0	0-4
455:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
456:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
457:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
458:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
459:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
460:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
461:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
Connleyhills	0-4	17-41	6.6-7.3	0	0	0
	4-11	17-41	6.6-7.3	0	0	0
	11-15	15-39	6.6-7.8	0	0.0-2.0	0
	15-22	28-42	6.6-7.8	0	0.0-2.0	0
	22-29	28-35	6.6-7.8	0	0.0-2.0	0
	29-32	35-61	6.6-7.8	0	0.0-2.0	0
	32-42	---	---	---	---	---
462:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
Goodtack	0-3	17-41	6.6-7.8	0	0.0-2.0	0-2
	3-7	17-41	6.6-7.8	0	0.0-2.0	0-2
	7-19	15-37	7.4-7.8	0-2	0.0-4.0	0-4
	19-46	---	---	---	---	---
	46-56	---	---	---	---	---
463:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
Goodtack	0-3	17-41	6.6-7.8	0	0.0-2.0	0-2
	3-7	17-41	6.6-7.8	0	0.0-2.0	0-2
	7-19	15-37	7.4-7.8	0-2	0.0-4.0	0-4
	19-46	---	---	---	---	---
	46-56	---	---	---	---	---
464:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
Hayespring	0-3	15-35	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
465:						
Moonbeam, moist------	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
Hayespring, moist----	0-3	19-43	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
466:						
Moonbeam-------------	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
Meld-----------------	0-3	17-41	6.6-7.3	0	0	0
	3-16	17-41	6.6-7.3	0	0	0
	16-33	15-37	6.6-7.3	0	0	0
	33-40	---	---	---	---	---
467:						
Moonbeam-------------	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
Senra----------------	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
468:						
Moonbeam, gravelly ashy fine sandy loam surface--------	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
Senra----------------	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
469:						
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
Senra	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
Hayespring	0-3	19-43	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
470:						
Morehouse	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
471:						
Morehouse	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
472:						
Morehouse	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
473:						
Morehouse	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-60	15-37	7.9-9.0	0	0.0-2.0	0-1
474:						
Morehouse, ashy fine sand surface	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
Morehouse, ashy sand surface	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
475:						
Morehouse	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
475:						
Playas	0-6	---	7.4-9.0	0-5	1.0-32.0	0-100
	6-60	---	7.4-9.0	0-5	0.0-32.0	0-100
476:						
Morfitt	0-3	13-18	6.6-8.4	0	0	0
	3-7	14-18	6.6-8.4	0	0	0
	7-25	17-24	6.6-8.4	0	0	0
	25-60	17-24	6.6-8.4	0-1	0.0-2.0	0
477:						
Murlose	0-11	17-41	7.4-7.8	0	0	0
	11-19	15-39	7.4-7.8	0	0	0
	19-22	---	---	0	0	0
	22-32	---	---	---	---	---
478:						
Murlose	0-3	17-41	7.4-7.8	0	0	0
	3-11	17-41	7.4-7.8	0	0	0
	11-19	15-39	7.4-7.8	0	0	0
	19-22	---	---	0	0	0
	22-32	---	---	---	---	---
479:						
Ninemile	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
480:						
Ninemile, low precipitation	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
481:						
Ninemile	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
Arcia	0-4	11-21	6.6-7.8	0	0	0
	4-12	13-20	6.6-7.8	0	0	0
	12-32	24-35	6.6-7.8	0	0	0
	32-42	---	---	---	---	---
482:						
Ninemile	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
Carvix	0-6	8.0-18	6.6-8.4	0-2	0.0-2.0	0
	6-19	8.0-16	7.4-8.4	0	0.0-2.0	0
	19-60	9.0-15	7.4-8.4	0	0.0-2.0	0
483:						
Ninemile	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
483:						
Edemaps	0-3	20-30	6.6-7.8	0	0	0
	3-10	11-25	7.4-7.8	0	0	0
	10-19	24-28	7.4-8.4	0	0.0-2.0	0
	19-24	24-28	7.4-8.4	0	0.0-2.0	0
	24-26	---	---	---	---	---
	26-30	---	---	---	---	---
484:						
Ninemile	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
Reluctan	0-2	10-20	6.6-7.8	0	0	0
	2-9	15-25	7.4-8.4	0	0	0
	9-26	15-25	7.4-8.4	0	0	0
	26-36	---	---	---	---	---
485:						
Ninemile	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
Reluctan	0-2	4.0-12	6.6-7.8	0	0	0
	2-9	15-25	7.4-8.4	0	0	0
	9-26	15-25	7.4-8.4	0	0	0
	26-36	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---
486:						
Ninemile, north	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
Felcher, south	0-4	3.0-13	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---
487:						
Ninemile	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
Westbutte	0-3	10-19	6.6-7.3	0	0	0
	3-11	13-25	6.6-7.3	0	0	0
	11-21	13-23	6.6-7.8	0	0	0
	21-31	---	---	---	---	---
488:						
Ninemile	0-2	21-31	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
Westbutte	0-3	10-19	6.6-7.3	0	0	0
	3-11	13-25	6.6-7.3	0	0	0
	11-21	13-23	6.6-7.8	0	0	0
	21-31	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
488:						
Ninemile, extremely stony surface	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
489:						
Noidee	0-2	3.0-10	7.9-9.0	0	2.0-4.0	2-10
	2-5	24-31	8.5-9.6	0	4.0-8.0	13-40
	5-16	17-31	8.5-9.6	1-5	8.0-16.0	20-60
	16-26	---	---	---	---	---
490:						
Norcross, extremely cobbly ashy loam surface	0-3	17-43	6.6-7.8	0	0	0
	3-6	17-41	6.6-7.8	0	0	0
	6-19	27-42	6.6-7.8	0	0.0-2.0	0-2
	19-21	---	---	---	---	---
	21-31	---	---	---	---	---
Norcross, cobbly ashy fine sandy loam surface	0-3	17-43	6.6-7.8	0	0	0
	3-6	17-41	6.6-7.8	0	0	0
	6-19	27-42	6.6-7.8	0	0.0-2.0	0-2
	19-21	---	---	---	---	---
	21-31	---	---	---	---	---
491:						
Norcross	0-3	17-43	6.6-7.8	0	0	0
	3-6	17-41	6.6-7.8	0	0	0
	6-19	27-42	6.6-7.8	0	0.0-2.0	0-2
	19-21	---	---	---	---	---
	21-31	---	---	---	---	---
492:						
Norcross	0-3	17-43	6.6-7.8	0	0	0
	3-6	17-41	6.6-7.8	0	0	0
	6-19	27-42	6.6-7.8	0	0.0-2.0	0-2
	19-21	---	---	---	---	---
	21-31	---	---	---	---	---
493:						
Oatmanflat	0-3	17-41	6.6-7.8	0	0	0
	3-12	15-37	6.6-7.8	0	0.0-2.0	0
	12-28	15-37	6.6-7.8	0	0.0-2.0	0-2
	28-44	15-35	7.4-8.4	0-2	0.0-2.0	0-2
	44-53	15-35	7.4-8.4	0-2	0.0-2.0	0-2
	53-64	---	---	---	---	---
494:						
Oatmanflat	0-3	17-41	6.6-7.8	0	0	0
	3-12	15-37	6.6-7.8	0	0.0-2.0	0
	12-28	15-37	6.6-7.8	0	0.0-2.0	0-2
	28-44	15-35	7.4-8.4	0-2	0.0-2.0	0-2
	44-53	15-35	7.4-8.4	0-2	0.0-2.0	0-2
	53-64	---	---	---	---	---
Borobey	0-4	15-37	6.6-7.8	0	0	0
	4-12	17-41	6.6-7.8	0	0	0
	12-50	15-37	6.6-8.4	0	0.0-2.0	0-1
	50-68	15-37	6.6-8.4	0	0.0-2.0	0-1

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
495:						
Old Camp	0-5	8.0-18	6.6-8.4	0	0.0-2.0	0
	5-11	15-24	6.6-8.4	0	0.0-2.0	0-2
	11-15	15-24	6.6-8.4	1-5	2.0-4.0	0-4
	15-25	---	---	---	---	---
496:						
Old Camp, south	0-5	8.0-18	6.6-8.4	0	0.0-2.0	0
	5-11	15-24	6.6-8.4	0	0.0-2.0	0-2
	11-15	15-24	6.6-8.4	1-5	2.0-4.0	0-4
	15-25	---	---	---	---	---
497:						
Old Camp	0-5	8.0-18	6.6-8.4	0	0.0-2.0	0
	5-11	15-24	6.6-8.4	0	0.0-2.0	0-2
	11-15	15-24	6.6-8.4	1-5	2.0-4.0	0-4
	15-25	---	---	---	---	---
Felcher, north	0-4	3.0-13	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
498:						
Osoll	0-4	7.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	4-8	7.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	8-12	7.0-13	7.9-9.0	1-2	2.0-10.0	0-4
	12-27	---	---	---	---	---
	27-37	---	---	---	---	---
Panlee	0-8	6.0-11	7.4-7.8	0	2.0-4.0	0-2
	8-22	6.0-11	7.9-9.0	0-2	2.0-4.0	0-2
	22-54	6.0-11	8.5-10.0	0-4	2.0-12.0	0-25
	54-61	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
499:						
Overallflat	0-4	15-35	7.4-7.8	0	0	0
	4-7	15-35	7.4-7.8	0	0	0
	7-14	15-35	7.4-7.8	0	0	0
	14-26	15-35	7.4-8.4	1-3	0.0-2.0	0
	26-60	15-35	7.4-8.4	0	0.0-2.0	0
500:						
Overallflat, pluvial lake	0-4	15-35	7.4-7.8	0	0	0
	4-7	15-35	7.4-7.8	0	0	0
	7-14	15-35	7.4-7.8	0	0	0
	14-26	15-35	7.4-8.4	1-3	0.0-2.0	0
	26-60	15-35	7.4-8.4	0	0.0-2.0	0
501:						
Overallflat	0-4	15-35	7.4-7.8	0	0	0
	4-7	15-35	7.4-7.8	0	0	0
	7-14	15-35	7.4-7.8	0	0	0
	14-26	15-35	7.4-8.4	1-3	0.0-2.0	0
	26-60	15-35	7.4-8.4	0	0.0-2.0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
501:						
Morehouse	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
502:						
Overallflat	0-4	15-35	7.4-7.8	0	0	0
	4-7	15-35	7.4-7.8	0	0	0
	7-14	15-35	7.4-7.8	0	0	0
	14-26	15-35	7.4-8.4	1-3	0.0-2.0	0
	26-60	15-35	7.4-8.4	0	0.0-2.0	0
Silverash	0-2	15-37	6.6-7.8	0	0	0
	2-8	15-35	7.4-7.8	0	0	0
	8-21	24-35	7.4-7.8	0	0	0
	21-62	10-24	7.4-8.4	0-1	0.0-4.0	0-2
503:						
Overallflat, hummocky	0-4	15-35	7.4-7.8	0	0	0
	4-7	15-35	7.4-7.8	0	0	0
	7-14	15-35	7.4-7.8	0	0	0
	14-26	15-35	7.4-8.4	1-3	0.0-2.0	0
	26-60	15-35	7.4-8.4	0	0.0-2.0	0
Silverash	0-2	15-37	6.6-7.8	0	0	0
	2-8	15-35	7.4-7.8	0	0	0
	8-21	24-35	7.4-7.8	0	0	0
	21-62	10-24	7.4-8.4	0-1	0.0-4.0	0-2
504:						
Ozamis, saline	0-10	30-41	7.9-8.4	0	10.0-16.0	0
	10-34	14-39	7.9-8.4	0	2.0-4.0	0
	34-36	1.0-3.0	6.6-7.8	0	0.0-2.0	0
	36-60	7.0-22	6.6-8.4	0	0.0-7.0	0
505:						
Ozamis	0-10	9.0-24	7.9-8.4	0	4.0-16.0	0
	10-34	14-39	7.4-8.4	0	2.0-4.0	0
	34-36	1.0-3.0	6.6-7.8	0	0.0-2.0	0
	36-60	7.0-22	6.6-8.4	0	0.0-7.0	0
Reese	0-4	7.0-18	9.1-9.6	5-15	16.0-32.0	100-200
	4-10	14-18	9.1-9.6	5-15	16.0-32.0	200-500
	10-33	14-21	9.1-9.6	15-30	2.0-16.0	30-140
	33-44	7.0-18	8.5-9.6	15-30	0.0-2.0	10-30
	44-60	14-18	8.5-9.6	15-30	0.0-2.0	5-30
506:						
Pait	0-3	7.0-19	6.6-7.8	0	0	0
	3-16	7.0-19	6.6-7.8	0	0	0
	16-42	7.0-15	6.6-7.8	0	0	0
	42-55	1.0-10	6.6-7.8	1-2	0.0-2.0	0
	55-62	2.0-7.0	7.4-8.4	1-2	0.0-2.0	0
507:						
Paulina	0-3	19-41	6.6-7.8	0	0	0
	3-12	19-41	6.6-7.8	0	0	0
	12-60	15-39	6.6-7.8	0	0.0-2.0	0-2

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
508:						
Paulina, very gravelly substratum	0-3	19-41	6.6-7.8	0	0	0
	3-53	19-41	6.6-7.8	0	0	0
	53-60	15-39	6.6-7.8	0	0.0-2.0	0-2
509:						
Paulina	0-1	40-170	6.1-7.3	0	0	0
	1-3	19-51	6.6-7.8	0	0	0
	3-12	19-51	6.6-7.8	0	0	0
	12-60	15-39	6.6-7.8	0	0.0-2.0	0-2
Chinarise	0-5	19-44	9.1-9.6	2-5	8.0-16.0	13-30
	5-18	17-49	8.5-9.6	2-5	8.0-16.0	13-30
	18-50	15-37	7.4-8.4	0	0.0-2.0	0-2
	50-60	15-37	7.4-8.4	0	0	0
511:						
Pernty	0-3	7.0-22	6.6-7.8	0	0	0
	3-12	15-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---
512:						
Pernty	0-2	17-39	6.6-7.8	0	0	0
	2-6	17-39	6.6-7.8	0	0	0
	6-18	15-37	6.6-7.8	0	0	0
	18-28	---	---	---	---	---
Chesebro	0-4	20-40	6.6-7.3	0	0	0
	4-24	20-45	6.6-7.8	0	0	0
	24-60	15-40	6.6-7.8	0	0	0
Rock outcrop	0-60	---	---	---	---	---
513:						
Pernty	0-3	6.0-15	6.6-7.8	0	0	0
	3-12	15-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---
Cleavage	0-7	10-19	6.6-7.3	0	0	0
	7-11	13-23	6.6-7.8	0	0	0
	11-21	---	---	---	---	---
514:						
Pernty, south	0-3	13-21	6.6-7.8	0	0	0
	3-12	15-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---
Glencabin	0-4	17-43	6.6-7.3	0	0	0
	4-21	17-43	6.6-7.3	0	0	0
	21-54	15-38	6.6-7.3	0	0	0
	54-64	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
516:						
Pernty, south	0-3	7.0-22	6.6-7.8	0	0	0
	3-12	15-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
516:						
Westbutte, north	0-3	10-19	6.6-7.3	0	0	0
	3-11	13-25	6.6-7.3	0	0	0
	11-21	13-23	6.6-7.8	0	0	0
	21-31	---	---	---	---	---
Ninemile	0-2	21-31	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
517:						
Picturerock	0-3	15-35	7.9-9.0	1-3	0.0-2.0	0
	3-33	15-35	7.9-9.0	1-3	2.0-8.0	0
	33-60	15-35	7.9-9.0	1-3	2.0-8.0	0
518:						
Pitcheranch	0-20	14-23	7.4-7.8	1-2	1.0-4.0	0-5
	20-60	7.0-13	6.6-7.3	0	0.0-2.0	0
519:						
Pitcheranch	0-2	35-59	7.4-8.4	0-2	0.0-2.0	0-3
	2-30	15-39	7.4-7.8	0	0	0
	30-60	15-36	7.4-7.8	0	0	0
Chinarise	0-5	19-44	9.1-9.6	2-5	8.0-16.0	13-30
	5-18	17-49	8.5-9.6	2-5	8.0-16.0	13-30
	18-50	15-37	7.4-8.4	0	0.0-2.0	0-2
	50-60	15-37	7.4-8.4	0	0	0
520:						
Playas	0-6	---	7.4-9.0	0-5	1.0-32.0	0-100
	6-60	---	7.4-9.0	0-5	0.0-32.0	0-100
521:						
Playas, saline	0-6	---	8.0-10.0	0-5	16.0-33.0	16-200
	6-60	---	8.0-10.0	0-5	16.0-33.0	16-200
522:						
Playas	0-6	---	7.4-9.0	0-5	1.0-32.0	0-100
	6-60	---	7.4-9.0	0-5	0.0-32.0	0-100
Helphenstein	0-2	3.0-10	7.4-10.0	1-12	4.0-35.0	20-525
	2-8	6.0-16	7.4-10.0	1-10	4.0-50.0	20-525
	8-34	14-21	7.9-10.0	5-20	4.0-35.0	20-400
	34-60	7.0-17	7.9-8.9	2-20	0.0-2.0	2-100
523:						
Poorjug	0-2	3.0-7.0	7.4-7.8	0	0.0-2.0	0-2
	2-5	13-17	7.4-7.8	0	0.0-2.0	0-2
	5-15	7.0-17	7.4-8.4	1-3	0.0-4.0	0-4
	15-25	---	---	---	---	---
Poorjug, overblown	0-13	3.0-7.0	7.4-7.8	0	0.0-2.0	0-2
	13-19	13-17	7.4-7.8	0	0.0-2.0	0-2
	19-29	---	---	---	---	---
524:						
Poorjug	0-2	3.0-11	7.4-7.8	0	0.0-2.0	0-2
	2-5	13-17	7.4-7.8	0	0.0-2.0	0-2
	5-15	7.0-17	7.4-8.4	1-3	0.0-4.0	0-4
	15-25	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
524:						
Rock outcrop	0-60	---	---	---	---	---
525:						
Porterfield	0-2	15-35	7.4-7.8	0	0	0
	2-9	15-35	7.4-8.4	1-2	0.0-2.0	0
	9-12	15-35	7.4-8.4	0-1	0.0-2.0	0
	12-22	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
526:						
Puzzlebark	0-2	15-37	7.4-7.8	0	0	0
	2-8	15-36	7.4-7.8	0-1	0.0-2.0	0
	8-14	15-35	7.4-8.4	1-5	1.0-3.0	0-2
	14-21	---	---	---	---	---
	21-31	---	---	---	---	---
Morehouse, moderately steep	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-60	15-37	7.9-9.0	0	0.0-2.0	0-1
Morehouse, gently sloping	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-60	15-37	7.9-9.0	0	0.0-2.0	0-1
527:						
Puzzlebark	0-2	15-37	7.4-7.8	0	0	0
	2-8	15-36	7.4-7.8	0-1	0.0-2.0	0
	8-14	15-35	7.4-8.4	1-5	1.0-3.0	0-2
	14-21	---	---	---	---	---
	21-31	---	---	---	---	---
Sandrock	0-3	15-35	6.6-7.8	0	0	0
	3-8	15-35	6.6-7.8	0	0	0
	8-12	15-35	6.6-7.8	0	0.0-2.0	0
	12-22	---	---	---	---	---
528:						
Rabbithills, overblown	0-10	1.0-6.0	7.4-7.8	0	0.0-2.0	0-2
	10-12	3.0-10	7.4-8.4	0	0.0-2.0	0-2
	12-22	3.0-5.0	7.4-8.9	0-4	0.0-4.0	0-2
	22-40	0.0-13	7.9-8.9	1-5	2.0-10.0	0-5
	40-60	---	---	---	---	---
Rabbithills	0-3	4.0-14	7.4-7.8	0	0.0-2.0	0-2
	3-12	3.0-10	7.4-8.4	0	0.0-2.0	0-2
	12-22	3.0-5.0	7.4-8.9	0-4	0.0-4.0	0-2
	22-40	0.0-13	7.9-8.9	1-5	2.0-10.0	0-5
	40-60	---	---	---	---	---
529:						
Rabbithills	0-3	1.0-6.0	7.4-7.8	0	0.0-2.0	0-2
	3-12	3.0-10	7.4-8.4	0	0.0-2.0	0-2
	12-22	3.0-5.0	7.4-8.9	0-4	0.0-4.0	0-2
	22-40	0.0-13	7.9-8.9	1-5	2.0-10.0	0-5
	40-60	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
529:						
Rabbithills, overblown	0-10	1.0-6.0	7.4-7.8	0	0.0-2.0	0-2
	10-12	3.0-10	7.4-8.4	0	0.0-2.0	0-2
	12-22	3.0-5.0	7.4-8.9	0-4	0.0-4.0	0-2
	22-40	0.0-13	7.9-8.9	1-5	2.0-10.0	0-5
	40-60	---	---	---	---	---
530:						
Rabbithills	0-3	1.0-6.0	7.4-7.8	0	0.0-2.0	0-2
	3-12	3.0-10	7.4-8.4	0	0.0-2.0	0-2
	12-22	3.0-5.0	7.4-8.9	0-4	0.0-4.0	0-2
	22-40	0.0-13	7.9-8.9	1-5	2.0-10.0	0-5
	40-60	---	---	---	---	---
531:						
Rabbithills, sodic	0-3	4.0-10	7.4-7.8	0	0.0-2.0	0-2
	3-12	3.0-10	7.9-8.4	0-2	0.0-2.0	0-2
	12-22	3.0-5.0	7.9-8.9	0-4	0.0-4.0	0-2
	22-40	0.0-13	7.9-8.9	1-5	2.0-10.0	0-5
	40-60	---	---	---	---	---
532:						
Rabbithills	0-13	13-18	7.4-7.8	0	0.0-2.0	0
	13-22	3.0-5.0	7.4-8.9	0-4	0.0-4.0	0-2
	22-45	3.0-10	7.4-7.8	0-2	0.0-2.0	0-2
	45-60	---	---	---	---	---
533:						
Rabbithills	0-3	1.0-6.0	7.4-7.8	0	0.0-2.0	0-2
	3-12	3.0-10	7.4-8.4	0	0.0-2.0	0-2
	12-22	3.0-5.0	7.4-8.9	0-4	0.0-4.0	0-2
	22-40	0.0-13	7.9-8.9	1-5	2.0-10.0	0-5
	40-60	---	---	---	---	---
534:						
Rabbithills	0-3	4.0-10	7.4-7.8	0	0.0-2.0	0-2
	3-12	3.0-10	7.4-8.4	0	0.0-2.0	0-2
	12-22	3.0-5.0	7.4-8.9	0-4	0.0-4.0	0-2
	22-40	0.0-13	7.9-8.9	1-5	2.0-10.0	0-5
	40-60	---	---	---	---	---
Helphenstein, frequently ponded	0-4	15-35	7.9-8.4	0	0	0
	4-9	15-35	7.9-8.4	1-3	2.0-4.0	0
	9-18	15-35	7.9-9.0	1-3	2.0-4.0	0-2
	18-60	15-35	7.9-9.0	1-3	2.0-4.0	0-2
535:						
Ratto	0-3	10-15	6.6-7.4	0	0	0
	3-9	18-24	6.6-7.8	0	0	0
	9-15	24-31	7.4-8.4	0-2	0.0-2.0	0
	15-19	---	---	---	---	---
	19-60	3.0-7.0	8.5-9.0	3-6	0.0-6.0	0-10
536:						
Raz, overblown	0-4	4.0-11	7.4-7.8	0	0	0
	4-12	9.0-15	7.4-7.8	0	0	0
	12-17	6.0-15	7.4-8.4	0-2	0.0-2.0	0
	17-30	---	---	---	---	---
	30-40	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
537:						
Raz	0-4	4.0-11	7.4-7.8	0	0	0
	4-12	9.0-15	7.4-7.8	0	0	0
	12-17	6.0-15	7.4-8.4	0-2	0.0-2.0	0
	17-30	---	---	---	---	---
	30-40	---	---	---	---	---
Brace	0-10	7.0-17	7.4-7.8	0	0	0
	10-14	10-18	7.4-8.4	0	0	0
	14-22	10-15	7.4-8.4	1-3	0.0-4.0	0
	22-26	---	---	---	---	---
	26-36	---	---	---	---	---
538:						
Raz, high precipitation	0-4	7.0-17	7.4-7.8	0	0	0
	4-12	9.0-15	7.4-7.8	0	0	0
	12-17	6.0-15	7.4-8.4	0-2	0.0-2.0	0
	17-30	---	---	---	---	---
	30-40	---	---	---	---	---
Brace, high precipitation	0-10	10-18	6.6-7.3	0	0	0
	10-14	10-18	7.4-8.4	0	0	0
	14-22	10-15	7.4-8.4	1-3	0.0-4.0	0
	22-26	---	---	---	---	---
	26-36	---	---	---	---	---
539:						
Raz, low precipitation	0-4	7.0-17	7.4-7.8	0	0	0
	4-12	9.0-15	7.4-7.8	0	0	0
	12-17	6.0-15	7.4-8.4	0-2	0.0-2.0	0
	17-30	---	---	---	---	---
	30-40	---	---	---	---	---
Brace, low precipitation	0-10	10-18	6.6-7.3	0	0	0
	10-14	10-18	7.4-8.4	0	0	0
	14-22	10-15	7.4-8.4	1-3	0.0-4.0	0
	22-26	---	---	---	---	---
	26-36	---	---	---	---	---
540:						
Raz, overblown	0-10	3.0-7.0	7.4-7.8	0	0	0
	10-12	9.0-15	7.4-7.8	0	0	0
	12-17	6.0-15	7.4-8.4	0-2	0.0-2.0	0
	17-30	---	---	---	---	---
	30-40	---	---	---	---	---
Brace, overblown	0-10	1.0-5.0	7.4-8.4	0	0	0
	10-14	10-18	7.4-8.4	0	0	0
	14-22	10-15	7.4-8.4	1-3	0.0-4.0	0
	22-26	---	---	---	---	---
	26-36	---	---	---	---	---
541:						
Raz	0-4	7.0-17	7.4-7.8	0	0	0
	4-12	9.0-15	7.4-7.8	0	0	0
	12-17	6.0-15	7.4-8.4	0-2	0.0-2.0	0
	17-30	---	---	---	---	---
	30-40	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
541:						
Poorjug	0-2	7.0-13	7.4-7.8	0	0.0-2.0	0-2
	2-5	13-17	7.4-7.8	0	0.0-2.0	0-2
	5-19	7.0-17	7.4-8.4	1-3	0.0-4.0	0-4
	19-29	---	---	---	---	---
542:						
Raz	0-4	6.0-9.0	7.4-7.8	0	0	0
	4-12	9.0-15	7.4-7.8	0	0	0
	12-17	6.0-15	7.4-8.4	0-2	0.0-2.0	0
	17-30	---	---	---	---	---
	30-40	---	---	---	---	---
Reallis	0-4	3.0-7.0	7.4-7.8	0	0	0
	4-10	4.0-6.0	7.4-7.8	0	0	0
	10-16	2.0-6.0	7.4-8.4	0	0.0-2.0	0
	16-29	2.0-7.0	7.4-8.4	1-2	2.0-4.0	0
	29-44	2.0-7.0	7.9-9.0	1-5	2.0-4.0	0
	44-60	2.0-7.0	7.9-8.4	1-2	0.0-2.0	0
543:						
Raztack	0-4	15-35	6.6-7.3	0	0.0-2.0	0
	4-14	15-35	6.6-7.8	0	0.0-2.0	0
	14-33	29-42	7.4-7.8	0	0.0-2.0	0
	33-44	17-22	7.4-7.8	0	0.0-2.0	0
	44-50	4.0-10	7.4-7.8	0	0.0-2.0	0
	50-70	4.0-24	7.4-7.8	0	0.0-4.0	0-4
Silverash	0-2	15-37	6.6-7.8	0	0	0
	2-8	15-35	7.4-7.8	0	0	0
	8-21	24-35	7.4-7.8	0	0	0
	21-62	10-24	7.4-8.4	0-1	0.0-4.0	0-2
Embal	0-2	17-41	6.6-7.8	0	0	0
	2-6	17-39	6.6-7.8	0-5	0.0-2.0	0
	6-25	17-39	6.6-7.8	0-5	0.0-2.0	0
	25-34	15-37	7.4-8.4	2-5	2.0-4.0	0
	34-42	15-35	7.9-8.4	2-5	2.0-8.0	0
	42-60	15-35	7.9-8.4	2-5	2.0-8.0	0
544:						
Reallis	0-4	4.0-5.0	7.4-7.8	0	0	0
	4-10	4.0-6.0	7.4-7.8	0	0	0
	10-16	2.0-6.0	7.4-8.4	0	0.0-2.0	0
	16-29	2.0-7.0	7.4-8.4	1-2	2.0-4.0	0
	29-44	2.0-7.0	7.9-9.0	1-5	2.0-4.0	0
	44-60	2.0-7.0	7.9-8.4	1-2	0.0-2.0	0
545:						
Reallis	0-4	3.0-7.0	7.4-7.8	0	0	0
	4-10	4.0-6.0	7.4-7.8	0	0	0
	10-16	2.0-6.0	7.4-8.4	0	0.0-2.0	0
	16-29	2.0-7.0	7.4-8.4	1-2	2.0-4.0	0
	29-44	2.0-7.0	7.9-9.0	1-5	2.0-4.0	0
	44-60	2.0-7.0	7.9-8.4	1-2	0.0-2.0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
546:						
Reallis, sandy loam surface	0-4	4.0-5.0	7.4-7.8	0	0	0
	4-10	4.0-6.0	7.4-7.8	0	0	0
	10-16	2.0-6.0	7.4-8.4	0	0.0-2.0	0
	16-29	2.0-7.0	7.4-8.4	1-2	2.0-4.0	0
	29-44	2.0-7.0	7.9-9.0	1-5	2.0-4.0	0
	44-60	2.0-7.0	7.9-8.4	1-2	0.0-2.0	0
Reallis, fine sandy loam surface	0-4	4.0-5.0	7.4-7.8	0	0	0
	4-10	4.0-6.0	7.4-7.8	0	0	0
	10-16	2.0-6.0	7.4-8.4	0	0.0-2.0	0
	16-29	2.0-7.0	7.4-8.4	1-2	2.0-4.0	0
	29-44	2.0-7.0	7.9-9.0	1-5	2.0-4.0	0
	44-60	2.0-7.0	7.9-8.4	1-2	0.0-2.0	0
547:						
Reallis	0-4	4.0-5.0	7.4-7.8	0	0	0
	4-10	4.0-6.0	7.4-7.8	0	0	0
	10-16	2.0-6.0	7.4-8.4	0	0.0-2.0	0
	16-29	2.0-7.0	7.4-8.4	1-2	2.0-4.0	0
	29-44	2.0-7.0	7.9-9.0	1-5	2.0-4.0	0
	44-60	2.0-7.0	7.9-8.4	1-2	0.0-2.0	0
Yankeewell	0-3	7.0-10	7.4-9.0	0	0.0-2.0	0-4
	3-6	8.0-17	7.9-9.0	0	0.0-2.0	0-4
	6-11	18-24	7.9-9.0	1-3	4.0-8.0	13-30
	11-25	---	---	---	---	---
	25-35	---	---	---	---	---
548:						
Redcanyon, north	0-8	13-20	6.6-7.3	0	0.0-2.0	0
	8-18	13-20	6.6-7.8	0	0.0-2.0	0
	18-29	13-21	6.6-7.8	0	0.0-4.0	0
	29-31	13-18	7.4-8.4	1-11	2.0-12.0	0-10
	31-41	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
549:						
Redcanyon, south	0-8	13-20	6.6-7.3	0	0.0-2.0	0
	8-18	13-20	6.6-7.8	0	0.0-2.0	0
	18-29	13-21	6.6-7.8	0	0.0-4.0	0
	29-31	13-18	7.4-8.4	1-11	2.0-12.0	0-10
	31-41	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
550:						
Redcliff, south	0-3	7.0-11	7.4-7.8	0	0	0
	3-12	7.0-12	7.4-7.8	0	0	0
	12-32	7.0-17	7.4-8.4	0	0	0
	32-42	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
551:						
Reese	0-4	29-39	9.1-9.6	5-15	16.0-32.0	100-200
	4-10	14-18	9.1-9.6	5-15	16.0-32.0	200-500
	10-33	14-21	9.1-9.6	15-30	2.0-16.0	30-140
	33-44	7.0-18	8.5-9.6	15-30	0.0-2.0	10-30
	44-60	14-18	8.5-9.6	15-30	0.0-2.0	5-30
Ozamis	0-10	30-41	7.9-8.4	0	4.0-16.0	0
	10-34	14-39	7.4-8.4	0	2.0-4.0	0
	34-36	1.0-3.0	6.6-7.8	0	0.0-2.0	0
	36-60	7.0-22	6.6-8.4	0	0.0-7.0	0
552:						
Reluctan	0-2	10-20	6.6-7.8	0	0	0
	2-9	15-25	7.4-8.4	0	0	0
	9-26	15-25	7.4-8.4	0	0	0
	26-36	---	---	---	---	---
553:						
Reluctan	0-2	4.0-12	6.6-7.8	0	0	0
	2-9	15-25	7.4-8.4	0	0	0
	9-26	15-25	7.4-8.4	0	0	0
	26-36	---	---	---	---	---
Arness	0-2	5.0-16	6.6-7.8	0	0	0
	2-9	8.0-18	6.6-7.8	0	0	0
	9-17	15-18	6.6-7.8	0-1	0	0
	17-21	---	---	---	---	---
	21-31	---	---	---	---	---
554:						
Riddleranch, north	0-8	10-17	7.4-7.8	0	0.0-2.0	0
	8-28	14-21	6.6-8.4	0	0.0-2.0	0-2
	28-38	---	---	---	---	---
555:						
Riddleranch, north	0-8	10-17	7.4-7.8	0	0.0-2.0	0
	8-28	14-21	6.6-8.4	0	0.0-2.0	0-2
	28-38	---	---	---	---	---
556:						
Riddleranch, south	0-8	6.0-11	7.4-7.8	0	0.0-2.0	0
	8-28	14-21	6.6-8.4	0	0.0-2.0	0-2
	28-38	---	---	---	---	---
Lambring, north	0-5	8.0-22	6.6-7.8	0	0	0
	5-20	9.0-17	6.6-7.8	0	0	0
	20-50	3.0-10	6.6-7.8	0	0	0
	50-60	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
557:						
Rinconflat	0-4	10-18	6.6-7.3	0	0	0
	4-29	13-18	6.6-7.8	0	0.0-2.0	0-2
	29-61	7.0-18	7.9-9.0	1-2	0.0-4.0	0-2
558:						
Rock outcrop	0-60	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
559:						
Rock outcrop	0-60	---	---	---	---	---
Blackhills	0-2	17-40	7.4-8.4	0-1	0.0-2.0	0
	2-8	17-45	7.4-8.4	0-1	0.0-2.0	0
	8-11	15-37	7.9-9.0	1-3	4.0-16.0	1-3
	11-21	---	---	---	---	---
560:						
Rock outcrop	0-60	---	---	---	---	---
Blackhills	0-2	17-40	7.4-8.4	0-1	0.0-2.0	0
	2-8	17-45	7.4-8.4	0-1	0.0-2.0	0
	8-11	15-37	7.9-9.0	1-3	4.0-16.0	1-3
	11-21	---	---	---	---	---
Glencabin, north	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
561:						
Rock outcrop	0-60	---	---	---	---	---
Felcher, south	0-4	20-27	6.6-7.8	0	0	0
	4-14	10-18	6.6-7.8	0	0	0
	14-27	8.0-13	7.4-8.4	0-1	0.0-2.0	0-2
	27-37	---	---	---	---	---
562:						
Rock outcrop	0-60	---	---	---	---	---
Shukash	0-3	15-36	6.6-7.3	0	0	0
	3-10	15-36	6.6-7.3	0	0	0
	10-37	15-36	6.6-7.3	0	0	0
	37-60	7.0-14	6.6-7.3	0	0	0
563:						
Rock outcrop	0-60	---	---	---	---	---
Xeric Haplocambids	0-3	7.0-13	6.6-8.4	0-1	0.0-2.0	0
	3-18	7.0-24	6.6-8.4	0-1	0.0-2.0	0
	18-28	---	---	---	---	---
564:						
Rock outcrop	0-60	---	---	---	---	---
Xeric Haplocambids, south	0-3	7.0-13	6.6-8.4	0-1	0.0-2.0	0
	3-18	7.0-24	6.6-8.4	0-1	0.0-2.0	0
	18-28	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---
565:						
Rock outcrop	0-60	---	---	---	---	---
Xerolls, south	0-7	7.0-37	6.6-8.4	0-1	0.0-2.0	0
	7-11	7.0-37	6.6-8.4	0-2	0.0-2.0	0-2
	11-21	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
566:						
Royst	0-3	15-25	6.6-7.3	0	0	0
	3-9	20-25	6.6-7.3	0	0	0
	9-25	30-35	7.4-7.8	0	0	0
	25-35	---	---	---	---	---
567:						
Royst	0-3	15-25	6.6-7.3	0	0	0
	3-9	20-25	6.6-7.3	0	0	0
	9-25	30-35	7.4-7.8	0	0	0
	25-35	---	---	---	---	---
Ninemile	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
568:						
Royst	0-3	15-25	6.6-7.3	0	0	0
	3-9	20-25	6.6-7.3	0	0	0
	9-25	30-35	7.4-7.8	0	0	0
	25-35	---	---	---	---	---
Nuss	0-3	7.0-14	6.1-7.8	0	0	0
	3-17	10-17	6.1-7.8	0	0	0
	17-27	---	---	---	---	---
569:						
Sagehen	0-3	14-17	6.6-7.8	0	0.0-2.0	0
	3-11	17-21	6.6-7.8	0	0.0-2.0	0-2
	11-21	---	---	---	---	---
570:						
Sagehen	0-3	14-17	6.6-7.8	0	0.0-2.0	0
	3-11	17-21	6.6-7.8	0	0.0-2.0	0-2
	11-21	---	---	---	---	---
Raz	0-4	4.0-11	7.4-7.8	0	0	0
	4-12	9.0-15	7.4-7.8	0	0	0
	12-17	6.0-15	7.4-8.4	0-2	0.0-2.0	0
	17-30	---	---	---	---	---
	30-40	---	---	---	---	---
571:						
Salhouse	0-5	15-35	7.9-9.0	0	2.0-8.0	5-30
	5-42	15-35	8.5-9.0	1-3	2.0-8.0	5-30
	42-61	10-35	7.9-9.0	0	4.0-8.0	13-30
572:						
Salhouse, strongly alkaline	0-5	15-35	7.9-9.0	0	2.0-8.0	5-30
	5-42	15-35	8.5-9.0	1-3	2.0-8.0	5-30
	42-61	10-35	7.9-9.0	0	4.0-8.0	13-30
573:						
Salhouse	0-5	15-35	7.9-9.0	0	2.0-8.0	5-30
	5-42	15-35	8.5-9.0	1-3	2.0-8.0	5-30
	42-61	10-35	7.9-9.0	0	4.0-8.0	13-30
Tonor	0-3	15-35	7.9-8.4	0	0	0
	3-11	15-35	7.9-9.0	0	0.0-4.0	4-13
	11-43	15-35	8.5-10.0	5-15	2.0-8.0	13-30
	43-60	15-35	7.9-8.4	1-3	2.0-4.0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
574:						
Seharney	0-3	6.0-13	6.6-7.8	0	0.0-2.0	0
	3-11	13-18	6.6-7.8	0-2	0.0-2.0	0-2
	11-13	---	---	---	---	---
	13-23	---	---	---	---	---
575:						
Seharney	0-3	6.0-13	6.6-7.8	0	0.0-2.0	0
	3-11	13-18	6.6-7.8	0-2	0.0-2.0	0-2
	11-13	---	---	---	---	---
	13-23	---	---	---	---	---
Rabbithills	0-3	4.0-10	7.4-7.8	0	0.0-2.0	0-2
	3-12	3.0-10	7.4-8.4	0	0.0-2.0	0-2
	12-22	3.0-5.0	7.4-8.9	0-4	0.0-4.0	0-2
	22-40	0.0-13	7.9-8.9	1-5	2.0-10.0	0-5
	40-60	---	---	---	---	---
Enko	0-2	4.0-11	6.6-8.4	0	0.0-2.0	0
	2-11	3.0-10	6.6-8.4	0	0.0-5.0	0
	11-35	7.0-13	7.4-8.4	0	0.0-5.0	0
	35-60	7.0-13	7.4-9.0	2-5	2.0-5.0	0-15
576:						
Senra	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
577:						
Senra	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
578:						
Senra	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
Borobey	0-4	15-37	6.6-7.8	0	0	0
	4-12	17-41	6.6-7.8	0	0	0
	12-50	15-37	6.6-8.4	0	0.0-2.0	0-1
	50-68	15-37	6.6-8.4	0	0.0-2.0	0-1
579:						
Senra	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
579:						
Dunres	0-4	17-41	6.6-7.8	0	0	0
	4-8	17-39	6.6-7.8	0	0	0
	8-19	28-39	6.6-7.8	0	0	0
	19-32	---	---	---	---	---
	32-56	---	---	---	---	---
	56-60	---	---	---	---	---
580:						
Senra	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
Goodtack	0-3	17-41	6.6-7.8	0	0.0-2.0	0-2
	3-7	17-41	6.6-7.8	0	0.0-2.0	0-2
	7-19	15-37	7.4-7.8	0-2	0.0-4.0	0-4
	19-46	---	---	---	---	---
	46-56	---	---	---	---	---
581:						
Senra	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
Goodtack	0-3	17-41	6.6-7.8	0	0.0-2.0	0-2
	3-7	17-41	6.6-7.8	0	0.0-2.0	0-2
	7-19	15-37	7.4-7.8	0-2	0.0-4.0	0-4
	19-46	---	---	---	---	---
	46-56	---	---	---	---	---
582:						
Senra	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
Goodtack	0-3	17-41	6.6-7.8	0	0.0-2.0	0-2
	3-7	17-41	6.6-7.8	0	0.0-2.0	0-2
	7-19	15-37	7.4-7.8	0-2	0.0-4.0	0-4
	19-46	---	---	---	---	---
	46-56	---	---	---	---	---
Suckerflat	0-8	17-41	7.4-7.8	0	0.0-2.0	0
	8-18	17-41	7.4-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
583:						
Senra	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
583:						
Hayespring-----------	0-3	19-43	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
584:						
Senra, droughty------	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
Hayespring, droughty	0-3	19-43	6.6-7.3	0	0	0
	3-10	15-35	7.4-7.8	0	0	0
	10-17	15-35	7.4-7.8	0	0	0
	17-24	15-35	7.4-7.8	0	0	0
	24-44	---	---	---	---	---
	44-54	---	---	---	---	---
585:						
Senra----------------	0-3	17-41	7.4-7.8	0	0	0
	3-10	17-41	7.4-7.8	0	0	0
	10-15	15-37	7.4-7.8	0	0	0
	15-19	15-35	7.4-7.8	0	0	0
	19-32	---	---	---	---	---
	32-42	---	---	---	---	---
Moonbeam-------------	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
586:						
Shanahan-------------	0-4	15-37	6.6-7.3	0	0	0
	4-9	15-37	6.6-7.3	0	0	0
	9-38	15-35	6.6-7.3	0	0	0
	38-60	7.0-10	6.6-7.3	0	0	0
587:						
Shanahan, low landscape position--	0-4	15-37	6.6-7.3	0	0	0
	4-9	15-37	6.6-7.3	0	0	0
	9-38	15-35	6.6-7.3	0	0	0
	38-60	7.0-10	6.6-7.3	0	0	0
588:						
Shanahan, north------	0-4	15-37	6.6-7.3	0	0	0
	4-9	15-37	6.6-7.3	0	0	0
	9-38	15-35	6.6-7.3	0	0	0
	38-60	7.0-10	6.6-7.3	0	0	0
Shukash--------------	0-3	15-36	6.6-7.3	0	0	0
	3-10	15-36	6.6-7.3	0	0	0
	10-37	15-36	6.6-7.3	0	0	0
	37-60	7.0-14	6.6-7.3	0	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
589:						
Shukash	0-3	15-36	6.6-7.3	0	0	0
	3-10	15-36	6.6-7.3	0	0	0
	10-37	15-36	6.6-7.3	0	0	0
	37-60	7.0-14	6.6-7.3	0	0	0
590:						
Shukash, cool	0-3	15-36	6.6-7.3	0	0	0
	3-10	15-36	6.6-7.3	0	0	0
	10-37	15-36	6.6-7.3	0	0	0
	37-60	7.0-14	6.6-7.3	0	0	0
591:						
Shukash, north	0-3	15-36	6.6-7.3	0	0	0
	3-10	15-36	6.6-7.3	0	0	0
	10-37	15-36	6.6-7.3	0	0	0
	37-60	7.0-14	6.6-7.3	0	0	0
Rock outcrop	0-60	---	---	---	---	---
592:						
Shukash, south	0-3	15-36	6.6-7.3	0	0	0
	3-10	15-36	6.6-7.3	0	0	0
	10-37	15-36	6.6-7.3	0	0	0
	37-60	7.0-14	6.6-7.3	0	0	0
Rock outcrop	0-60	---	---	---	---	---
593:						
Shukash	0-3	15-36	6.6-7.3	0	0	0
	3-10	15-36	6.6-7.3	0	0	0
	10-37	15-36	6.6-7.3	0	0	0
	37-60	7.0-14	6.6-7.3	0	0	0
Rock outcrop	0-60	---	---	---	---	---
594:						
Shukash	0-3	15-36	6.6-7.3	0	0	0
	3-10	15-36	6.6-7.3	0	0	0
	10-37	15-36	6.6-7.3	0	0	0
	37-60	7.0-14	6.6-7.3	0	0	0
Rock outcrop	0-60	---	---	---	---	---
595:						
Shukash	0-3	15-36	6.6-7.3	0	0	0
	3-10	15-36	6.6-7.3	0	0	0
	10-37	15-36	6.6-7.3	0	0	0
	37-60	7.0-14	6.6-7.3	0	0	0
Rock outcrop	0-60	---	---	---	---	---
596:						
Shukash	0-3	15-36	6.6-7.3	0	0	0
	3-10	15-36	6.6-7.3	0	0	0
	10-37	15-36	6.6-7.3	0	0	0
	37-60	7.0-14	6.6-7.3	0	0	0
Shanahan	0-4	15-37	6.6-7.3	0	0	0
	4-9	15-37	6.6-7.3	0	0	0
	9-38	15-35	6.6-7.3	0	0	0
	38-60	7.0-10	6.6-7.3	0	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
597:						
Shukash	0-3	15-36	6.6-7.3	0	0	0
	3-10	15-36	6.6-7.3	0	0	0
	10-37	15-36	6.6-7.3	0	0	0
	37-60	7.0-14	6.6-7.3	0	0	0
Wanoga	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
598:						
Sisters	0-1	---	4.5-5.5	0	0	0
	1-10	19-49	6.6-7.3	0	0	0
	10-17	15-39	6.6-7.8	0	0	0
	17-33	15-39	6.6-7.8	0	0	0
	33-47	7.0-21	6.6-7.8	0	0	0
	47-51	---	---	---	---	---
Wanoga	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
599:						
Sliptrack	0-3	19-43	6.6-7.8	0	0	0
	3-11	19-43	6.6-7.8	0	0	0
	11-16	17-41	7.4-7.8	0	0	0
	16-22	15-37	7.4-7.8	0	0	0
	22-60	---	---	---	---	---
Moonbeam	0-3	17-41	6.6-7.8	0	0	0
	3-8	17-39	6.6-7.8	0	0	0
	8-14	24-35	7.4-8.4	0	0	0
	14-18	28-35	7.4-8.4	0	0	0
	18-27	---	---	---	---	---
	27-37	---	---	---	---	---
600:						
Sliptrack	0-3	15-35	6.6-7.8	0	0	0
	3-11	19-43	6.6-7.8	0	0	0
	11-16	17-41	7.4-7.8	0	0	0
	16-22	15-37	7.4-7.8	0	0	0
	22-60	---	---	---	---	---
Oatmanflat	0-3	17-41	6.6-7.8	0	0	0
	3-12	15-37	6.6-7.8	0	0.0-2.0	0
	12-28	15-37	6.6-7.8	0	0.0-2.0	0-2
	28-44	15-35	7.4-8.4	0-2	0.0-2.0	0-2
	44-53	15-35	7.4-8.4	0-2	0.0-2.0	0-2
	53-64	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
601:						
Snakepit	0-3	3.0-8.0	6.6-7.8	0	0	0
	3-19	4.0-10	7.4-8.4	0	0	0
	19-30	4.0-7.0	7.4-8.4	0	0.0-4.0	0-2
	30-33	4.0-7.0	7.4-8.4	0-3	0.0-4.0	0-2
	33-42	---	7.4-9.0	1-3	2.0-8.0	0-4
	42-63	4.0-8.0	7.9-9.0	1-3	2.0-10.0	2-8
602:						
Southcat	0-4	3.0-6.0	8.5-9.8	0	4.0-8.0	13-30
	4-10	3.0-13	9.0-9.8	0	4.0-8.0	13-30
	10-26	1.0-8.0	9.0-9.8	0	4.0-8.0	13-30
	26-62	1.0-3.0	9.0-9.8	0	4.0-16.0	13-30
603:						
Southcat	0-4	3.0-6.0	8.5-9.8	0	4.0-8.0	13-30
	4-10	3.0-13	9.0-9.8	0	4.0-8.0	13-30
	10-26	1.0-8.0	9.0-9.8	0	4.0-8.0	13-30
	26-62	1.0-3.0	9.0-9.8	0	4.0-16.0	13-30
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
604:						
Southcat	0-4	1.0-4.0	8.5-9.8	0	4.0-8.0	13-30
	4-10	3.0-13	9.0-9.8	0	4.0-8.0	13-30
	10-26	1.0-8.0	9.0-9.8	0	4.0-8.0	13-30
	26-62	1.0-3.0	9.0-9.8	0	4.0-16.0	13-30
Playas	0-6	---	7.4-9.0	0-5	1.0-32.0	0-100
	6-60	---	7.4-9.0	0-5	0.0-32.0	0-100
605:						
Spiderhole, very cobbly loamy sand surface	0-3	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	3-6	3.0-11	7.4-8.4	0	0.0-2.0	0-2
	6-10	11-21	7.4-8.4	0	0.0-2.0	0-2
	10-21	---	---	---	---	---
	21-24	3.0-7.0	8.5-9.6	3-5	2.0-10.0	0-8
	24-34	---	---	---	---	---
Spiderhole, very gravelly loamy sand surface	0-3	3.0-7.0	7.4-8.4	0	0.0-2.0	0-2
	3-6	3.0-11	7.4-8.4	0	0.0-2.0	0-2
	6-10	11-21	7.4-8.4	0	0.0-2.0	0-2
	10-21	---	---	---	---	---
	21-24	3.0-7.0	8.5-9.6	3-5	2.0-10.0	0-8
	24-34	---	---	---	---	---
606:						
Stampede	0-2	10-18	6.6-7.8	0	0	0
	2-9	14-25	6.6-7.8	0	0	0
	9-22	24-35	7.4-8.4	0	0	0
	22-32	---	7.4-8.4	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
607:						
Steiger	0-1	---	4.5-5.5	0	0	0
	1-4	17-51	5.6-7.3	0	0	0
	4-12	17-51	6.1-7.3	0	0	0
	12-45	15-39	6.1-7.8	0	0	0
	45-60	5.0-13	6.6-7.3	0	0	0
608:						
Steiger, cool	0-1	---	4.5-5.5	0	0	0
	1-4	17-51	5.6-7.3	0	0	0
	4-12	17-51	6.1-7.3	0	0	0
	12-45	15-39	6.1-7.8	0	0	0
	45-60	5.0-13	6.6-7.3	0	0	0
609:						
Steiger	0-1	---	4.5-5.5	0	0	0
	1-4	17-51	5.6-7.3	0	0	0
	4-12	17-51	6.1-7.3	0	0	0
	12-45	15-39	6.1-7.8	0	0	0
	45-60	5.0-13	6.6-7.3	0	0	0
610:						
Steiger, north	0-1	---	4.5-5.5	0	0	0
	1-4	17-51	5.6-7.3	0	0	0
	4-12	17-51	6.1-7.3	0	0	0
	12-45	15-39	6.1-7.8	0	0	0
	45-60	5.0-13	6.6-7.3	0	0	0
Rock outcrop	0-60	---	---	---	---	---
611:						
Steiger, south	0-1	---	4.5-5.5	0	0	0
	1-4	17-51	5.6-7.3	0	0	0
	4-12	17-51	6.1-7.3	0	0	0
	12-45	15-39	6.1-7.8	0	0	0
	45-60	5.0-13	6.6-7.3	0	0	0
Rock outcrop	0-60	---	---	---	---	---
612:						
Suckerflat	0-8	17-41	7.4-7.8	0	0.0-2.0	0
	8-18	17-41	7.4-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
613:						
Suckerflat	0-8	17-41	7.4-7.8	0	0.0-2.0	0
	8-18	17-41	7.4-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
614:						
Suckerflat	0-8	17-41	7.4-7.8	0	0.0-2.0	0
	8-18	17-41	7.4-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
615:						
Suckerflat, north	0-8	17-41	7.4-7.8	0	0.0-2.0	0
	8-18	17-41	7.4-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
616:						
Suckerflat, south	0-8	17-41	7.4-7.8	0	0.0-2.0	0
	8-18	17-41	7.4-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
617:						
Suckerflat	0-8	17-41	7.4-7.8	0	0.0-2.0	0
	8-18	17-41	7.4-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
618:						
Suckerflat	0-8	17-41	7.4-7.8	0	0.0-2.0	0
	8-18	17-41	7.4-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
Weglike	0-3	19-41	6.6-7.3	0	0	0
	3-12	17-41	6.6-7.3	0	0	0
	12-22	13-21	7.4-7.8	0	0	0
	22-23	13-21	7.4-7.8	0	0	0
	23-33	---	---	---	---	---
619:						
Silverash	0-2	15-37	6.6-7.8	0	0	0
	2-8	15-35	7.4-7.8	0	0	0
	8-21	24-35	7.4-7.8	0	0	0
	21-62	10-24	7.4-8.4	0-1	0.0-4.0	0-2
620:						
Swalesilver	0-4	10-17	6.1-7.8	0	0.0-2.0	0
	4-16	24-46	7.4-8.4	0	0.0-2.0	0
	16-60	15-21	7.4-8.9	0-2	2.0-4.0	0-4
621:						
Swalesilver	0-4	10-17	6.1-7.8	0	0.0-2.0	0
	4-16	24-46	7.4-8.4	0	0.0-2.0	0
	16-60	15-21	7.4-8.9	0-2	2.0-4.0	0-4
622:						
Teguro	0-2	7.0-14	6.6-7.8	0	0	0
	2-8	5.0-13	6.6-7.8	0	0	0
	8-15	12-19	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
623:						
Teguro	0-2	7.0-14	6.6-7.8	0	0	0
	2-8	5.0-13	6.6-7.8	0	0	0
	8-15	12-19	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
624:						
Thompsoncabin, extremely bouldery	0-3	7.0-13	8.5-10.0	0-2	4.0-8.0	13-30
	3-14	17-24	8.5-10.0	2-8	4.0-16.0	13-45
	14-24	---	---	---	---	---
Thompsoncabin	0-3	7.0-13	8.5-10.0	0-2	4.0-8.0	13-30
	3-14	17-24	8.5-10.0	2-8	4.0-16.0	13-45
	14-24	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
624:						
Rock outcrop	0-60	---	---	---	---	---
625:						
Thompsoncabin	0-3	7.0-13	8.5-10.0	0-2	4.0-8.0	13-30
	3-14	17-24	8.5-10.0	2-8	4.0-16.0	13-45
	14-24	---	---	---	---	---
Wildhill	0-2	7.0-17	7.9-9.0	0	0.0-2.0	0-5
	2-9	8.0-13	7.9-9.0	0	0.0-2.0	0-5
	9-14	14-24	9.0-9.6	0-2	0.0-2.0	10-30
	14-25	14-21	9.0-9.6	1-2	0.0-2.0	5-30
	25-35	---	---	---	---	---
626:						
Thornlake	0-7	15-35	8.5-9.0	0-1	0	2-8
	7-25	15-35	7.9-9.8	1-2	1.0-2.0	13-30
	25-61	15-35	7.9-10.0	1-9	2.0-8.0	13-80
627:						
Thornlake, nonsodic surface	0-7	15-35	7.9-8.4	0	0	0
	7-25	15-35	7.9-9.8	1-2	1.0-2.0	13-30
	25-61	15-35	7.9-10.0	1-9	2.0-8.0	13-80
628:						
Thornlake, strongly alkaline	0-7	15-35	8.5-9.0	0-1	0	2-8
	7-25	15-35	7.9-9.8	1-2	1.0-2.0	13-30
	25-61	15-35	7.9-10.0	1-9	2.0-8.0	13-80
Thornlake, moderately alkaline	0-7	15-35	7.9-8.4	0	0	0
	7-25	15-35	7.9-9.8	1-2	1.0-2.0	13-30
	25-61	15-35	7.9-10.0	1-9	2.0-8.0	13-80
629:						
Thornlake	0-5	15-35	7.4-7.9	0-1	0.0-4.0	0
	5-59	15-35	7.4-8.4	1-2	0.0-4.0	0-2
	59-65	15-35	7.4-7.8	0-1	0.0-4.0	0-2
Catlow	0-3	1.0-8.0	7.4-8.4	0	0	0
	3-21	5.0-13	7.4-8.4	0	0	0
	21-30	3.0-8.0	7.4-8.4	0-1	0.0-2.0	0
	30-60	2.0-5.0	7.4-8.4	0-1	0.0-2.0	0
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
630:						
Thornlake	0-5	15-35	7.4-7.9	0-1	0.0-4.0	0
	5-59	15-35	7.4-8.4	1-2	0.0-4.0	0-2
	59-65	15-35	7.4-7.8	0-1	0.0-4.0	0-2
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
631:						
Thornlake------------	0-7	15-35	7.9-8.4	0	0	0
	7-25	15-35	7.9-9.8	1-2	1.0-2.0	13-30
	25-61	15-35	7.9-10.0	1-9	2.0-8.0	13-80
Morehouse------------	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
632:						
Thornlake------------	0-7	15-35	8.5-9.0	0-1	0	2-8
	7-25	15-35	7.9-9.8	1-2	1.0-2.0	13-30
	25-61	15-35	7.9-10.0	1-9	2.0-8.0	13-80
Salhouse-------------	0-5	15-35	7.9-9.0	0	2.0-8.0	5-30
	5-42	15-35	8.5-9.0	1-3	2.0-8.0	5-30
	42-61	10-35	7.9-9.0	0	4.0-8.0	13-30
633:						
Thornlake, dunes-----	0-7	15-35	7.9-8.4	0	0	0
	7-25	15-35	7.9-9.8	1-2	1.0-2.0	13-30
	25-61	15-35	7.9-10.0	1-9	2.0-8.0	13-80
Salhouse, dunes------	0-5	15-35	7.9-9.0	0	2.0-8.0	5-30
	5-42	15-35	8.5-9.0	1-3	2.0-8.0	5-30
	42-61	10-35	7.9-9.0	0	4.0-8.0	13-30
634:						
Thornlake------------	0-7	15-35	8.5-9.0	0-1	0	2-8
	7-25	15-35	7.9-9.8	1-2	1.0-2.0	13-30
	25-61	15-35	7.9-10.0	1-9	2.0-8.0	13-80
Salhouse-------------	0-5	15-35	7.9-9.0	0	2.0-8.0	5-30
	5-42	15-35	8.5-9.0	1-3	2.0-8.0	5-30
	42-61	10-35	7.9-9.0	0	4.0-8.0	13-30
Fossilake------------	0-1	15-35	9.1-11.0	2-6	16.0-30.0	30-100
	1-3	15-35	9.1-11.0	2-4	16.0-30.0	30-100
	3-15	15-35	9.1-11.0	2-4	16.0-30.0	30-100
	15-31	15-35	9.1-11.0	1-3	8.0-16.0	13-60
	31-43	15-35	8.5-9.0	3-7	8.0-16.0	13-30
	43-66	15-35	8.5-9.0	2-4	4.0-8.0	5-13
635:						
Teguro---------------	0-2	7.0-14	6.6-7.8	0	0	0
	2-8	5.0-13	6.6-7.8	0	0	0
	8-15	12-19	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
Carryback------------	0-3	10-20	6.6-7.8	0	0	0
	3-7	20-31	6.6-7.8	0	0	0
	7-11	30-45	7.4-7.8	0	0	0
	11-17	28-42	7.4-7.8	0	0	0
	17-24	28-42	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
636:						
Toll-----------------	0-15	1.0-7.0	6.6-7.8	0	0	0
	15-40	1.0-7.0	6.6-7.8	0	0	0
	40-60	1.0-7.0	6.6-7.8	0-2	0.0-4.0	0-2

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
637:						
Toll	0-15	1.0-7.0	6.6-7.8	0	0	0
	15-40	1.0-7.0	6.6-7.8	0	0	0
	40-60	1.0-7.0	6.6-7.8	0-2	0.0-4.0	0-2
Nevador	0-4	4.0-7.0	6.6-7.8	0	0	0
	4-25	10-17	6.6-8.4	0	0.0-4.0	0-5
	25-30	2.0-7.0	7.4-9.0	1-5	0.0-8.0	0-12
	30-60	1.0-3.0	7.4-9.0	0-2	0.0-4.0	0-5
638:						
Tonor	0-3	15-35	7.9-8.4	0	0	0
	3-11	15-35	7.9-9.0	0	0.0-4.0	4-13
	11-43	15-35	8.5-10.0	5-15	2.0-8.0	13-30
	43-60	15-35	7.9-8.4	1-3	2.0-4.0	0
639:						
Tuffcabin	0-5	17-39	7.4-8.4	0-2	0.0-2.0	0-2
	5-30	16-39	7.4-8.4	0-2	0.0-2.0	0-2
	30-46	15-35	7.9-9.6	1-4	4.0-8.0	5-13
	46-54	---	---	---	---	---
	54-62	15-35	7.4-9.0	1-4	4.0-8.0	0-13
640:						
Turpin	0-3	3.0-13	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
641:						
Turpin	0-3	3.0-13	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
642:						
Turpin	0-3	10-14	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
Boravall	0-2	18-25	8.5-9.2	2-5	16.0-30.0	100-600
	2-6	18-25	8.5-9.2	2-5	16.0-30.0	100-600
	6-17	18-35	7.9-9.2	2-5	2.0-4.0	13-50
	17-31	18-35	7.9-9.2	2-5	2.0-4.0	13-50
	31-42	18-35	7.9-9.2	2-5	2.0-4.0	13-50
	42-54	18-35	7.9-9.2	2-5	2.0-4.0	13-50
	54-64	18-35	7.9-9.2	2-5	2.0-4.0	13-50
Playas	0-6	---	7.4-9.0	0-5	1.0-32.0	0-100
	6-60	---	7.4-9.0	0-5	0.0-32.0	0-100
643:						
Turpin	0-3	3.0-13	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
Kewake	0-4	5.0-10	7.9-9.0	2-6	4.0-12.0	2-12
	4-18	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	18-25	5.0-10	7.9-9.0	3-8	4.0-12.0	5-12
	25-47	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
	47-60	5.0-10	8.5-10.0	3-8	4.0-16.0	8-12
Playas	0-6	---	7.4-9.0	0-5	1.0-32.0	0-100
	6-60	---	7.4-9.0	0-5	0.0-32.0	0-100

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
644:						
Turpin	0-3	10-14	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
Playas	0-6	---	7.4-9.0	0-5	1.0-32.0	0-100
	6-60	---	7.4-9.0	0-5	0.0-32.0	0-100
645:						
Turpin, saline	0-3	10-14	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
Playas, saline	0-6	---	8.0-10.0	0-5	16.0-33.0	16-200
	6-60	---	8.0-10.0	0-5	16.0-33.0	16-200
646:						
Turpin, sodic	0-3	10-14	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
Playas, sodic	0-6	---	8.0-10.0	0-5	16.0-33.0	16-200
	6-60	---	8.0-10.0	0-5	16.0-33.0	16-200
647:						
Turpin	0-3	3.0-13	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
Rabbitcreek	0-3	7.0-12	7.4-8.4	0	0.0-2.0	0
	3-7	7.0-12	7.4-8.4	0	0.0-2.0	0-5
	7-14	9.0-15	7.4-8.4	0	0.0-2.0	0-5
	14-26	9.0-15	7.9-9.0	3-5	2.0-8.0	5-13
	26-40	9.0-15	7.9-9.0	3-5	2.0-8.0	5-13
	40-62	7.0-12	7.9-9.0	3-5	2.0-8.0	5-13
648:						
Turpin	0-3	15-21	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
Reese	0-4	7.0-18	9.1-9.6	5-15	16.0-32.0	100-200
	4-10	14-18	9.1-9.6	5-15	16.0-32.0	200-500
	10-33	14-21	9.1-9.6	15-30	2.0-16.0	30-140
	33-44	7.0-18	8.5-9.6	15-30	0.0-2.0	10-30
	44-60	14-18	8.5-9.6	15-30	0.0-2.0	5-30
649:						
Turpin	0-3	3.0-13	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
Turpin, overblown	0-3	3.0-13	7.4-9.2	0-10	1.0-8.0	5-50
	3-18	8.0-24	8.5-9.4	1-10	8.0-16.0	100-200
	18-60	7.0-24	9.0-9.4	2-10	8.0-16.0	200-300
650:						
Vitale	0-3	10-15	6.6-7.8	0	0	0
	3-14	13-19	6.6-7.8	0	0	0
	14-24	20-24	6.6-7.8	0	0	0
	24-34	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
651:						
Wagontire------------	0-5	20-26	6.6-7.3	0	0	0
	5-15	24-35	6.6-7.3	0	0	0
	15-40	---	---	---	---	---
	40-60	8.0-13	7.4-7.8	0-1	0	0
652:						
Wanoga, south--------	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
653:						
Wanoga, south--------	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
654:						
Wanoga---------------	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
Henkle---------------	0-1	---	4.5-5.5	0	0	0
	1-6	19-43	6.6-7.3	0	0	0
	6-16	16-39	6.6-7.8	0	0	0
	16-20	16-37	6.6-7.8	0	0	0
	20-30	---	---	---	---	---
655:						
Wanoga---------------	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
Henkle, cool---------	0-1	---	4.5-5.5	0	0	0
	1-6	19-43	6.6-7.3	0	0	0
	6-16	16-39	6.6-7.8	0	0	0
	16-20	16-37	6.6-7.8	0	0	0
	20-30	---	---	---	---	---
656:						
Wanoga, dry----------	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
Henkle, dry----------	0-1	---	4.5-5.5	0	0	0
	1-6	19-43	6.6-7.3	0	0	0
	6-16	16-39	6.6-7.8	0	0	0
	16-20	16-37	6.6-7.8	0	0	0
	20-30	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
657:						
Wanoga, moist	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
Henkle, moist	0-1	---	4.5-5.5	0	0	0
	1-6	19-43	6.6-7.3	0	0	0
	6-16	16-39	6.6-7.8	0	0	0
	16-20	16-37	6.6-7.8	0	0	0
	20-30	---	---	---	---	---
658:						
Wanoga	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
Henkle	0-1	---	4.5-5.5	0	0	0
	1-6	19-43	6.6-7.3	0	0	0
	6-16	16-39	6.6-7.8	0	0	0
	16-20	16-37	6.6-7.8	0	0	0
	20-30	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
659:						
Wanoga, north	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
Henkle, north	0-1	---	4.5-5.5	0	0	0
	1-6	19-43	6.6-7.3	0	0	0
	6-16	16-39	6.6-7.8	0	0	0
	16-20	16-37	6.6-7.8	0	0	0
	20-30	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
660:						
Wanoga	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
Laidlaw	0-1	---	4.5-5.5	0	0	0
	1-5	17-43	6.6-7.3	0	0	0
	5-13	15-39	6.6-7.3	0	0	0
	13-31	15-39	6.6-7.3	0	0	0
	31-37	15-35	6.6-7.3	0	0	0
	37-50	15-35	6.6-7.3	0	0	0
	50-60	15-35	6.6-7.8	0	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
661:						
Wanoga	0-1	---	4.5-5.5	0	0	0
	1-8	17-41	6.1-7.3	0	0	0
	8-23	17-41	6.6-7.3	0	0	0
	23-29	15-35	6.6-7.3	0	0	0
	29-39	---	---	---	---	---
Sisters	0-1	---	4.5-5.5	0	0	0
	1-10	19-49	6.6-7.3	0	0	0
	10-17	15-39	6.6-7.8	0	0	0
	17-33	15-39	6.6-7.8	0	0	0
	33-47	7.0-21	6.6-7.8	0	0	0
	47-51	---	---	---	---	---
663:						
Wegert	0-2	19-41	6.6-7.3	0	0	0
	2-6	17-39	6.6-7.8	0	0	0
	6-27	15-35	7.4-7.8	0	0.0-2.0	0
	27-31	15-35	7.4-7.8	0	0.0-2.0	0
	31-41	---	---	---	---	---
664:						
Wegert, cool	0-2	19-41	6.6-7.3	0	0	0
	2-6	17-39	6.6-7.8	0	0	0
	6-27	15-35	7.4-7.8	0	0.0-2.0	0
	27-31	15-35	7.4-7.8	0	0.0-2.0	0
	31-41	---	---	---	---	---
665:						
Wegert	0-2	19-41	6.6-7.3	0	0	0
	2-6	17-39	6.6-7.8	0	0	0
	6-27	15-35	7.4-7.8	0	0.0-2.0	0
	27-31	15-35	7.4-7.8	0	0.0-2.0	0
	31-41	---	---	---	---	---
666:						
Wegert	0-2	19-41	6.6-7.3	0	0	0
	2-6	17-39	6.6-7.8	0	0	0
	6-27	15-35	7.4-7.8	0	0.0-2.0	0
	27-31	15-35	7.4-7.8	0	0.0-2.0	0
	31-41	---	---	---	---	---
Kunceider	0-5	17-41	6.6-7.3	0	0	0
	5-9	17-39	6.6-7.3	0	0	0
	9-14	15-35	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
667:						
Wegert, cool	0-2	19-41	6.6-7.3	0	0	0
	2-6	17-39	6.6-7.8	0	0	0
	6-27	15-35	7.4-7.8	0	0.0-2.0	0
	27-31	15-35	7.4-7.8	0	0.0-2.0	0
	31-41	---	---	---	---	---
Kunceider, cool	0-5	17-41	6.6-7.3	0	0	0
	5-9	17-39	6.6-7.3	0	0	0
	9-14	15-35	6.6-7.8	0	0	0
	14-24	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
668:						
Wegert, high precipitation-------	0-2	19-41	6.6-7.3	0	0	0
	2-6	17-39	6.6-7.8	0	0	0
	6-27	15-35	7.4-7.8	0	0.0-2.0	0
	27-31	15-35	7.4-7.8	0	0.0-2.0	0
	31-41	---	---	---	---	---
Kunceider, high precipitation-------	0-5	17-41	6.6-7.3	0	0	0
	5-9	17-39	6.6-7.3	0	0	0
	9-14	15-35	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
669:						
Wegert---------------	0-2	19-41	6.6-7.3	0	0	0
	2-6	17-39	6.6-7.8	0	0	0
	6-27	15-35	7.4-7.8	0	0.0-2.0	0
	27-31	15-35	7.4-7.8	0	0.0-2.0	0
	31-41	---	---	---	---	---
Morehouse------------	0-5	15-37	7.4-9.0	0	0.0-2.0	0
	5-22	15-37	7.4-9.0	0	0.0-2.0	0-1
	22-41	15-37	7.9-9.0	0	0.0-2.0	0-1
	41-60	15-35	8.5-11.0	1-3	2.0-16.0	2-13
670:						
Weglike--------------	0-3	19-41	6.6-7.3	0	0	0
	3-12	17-41	6.6-7.3	0	0	0
	12-22	13-21	7.4-7.8	0	0	0
	22-23	13-21	7.4-7.8	0	0	0
	23-33	---	---	---	---	---
Jacksplace-----------	0-4	17-39	6.6-7.3	0	0	0
	4-9	17-39	6.6-7.3	0	0	0
	9-12	15-37	6.6-7.8	0	0	0
	12-20	15-35	6.6-7.8	0	0	0
	20-26	15-35	7.4-7.8	0	0	0
	26-30	---	---	---	---	---
671:						
Weglike--------------	0-3	19-41	6.6-7.3	0	0	0
	3-12	17-41	6.6-7.3	0	0	0
	12-22	13-21	7.4-7.8	0	0	0
	22-23	13-21	7.4-7.8	0	0	0
	23-33	---	---	---	---	---
Suckerflat-----------	0-8	17-41	7.4-7.8	0	0.0-2.0	0
	8-18	17-41	7.4-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
672:						
Westbutte, north-----	0-3	10-19	6.6-7.3	0	0	0
	3-11	13-25	6.6-7.3	0	0	0
	11-21	13-23	6.6-7.8	0	0	0
	21-31	---	---	---	---	---
Lambring, north------	0-5	8.0-22	6.6-7.8	0	0	0
	5-20	9.0-17	6.6-7.8	0	0	0
	20-50	3.0-10	6.6-7.8	0	0	0
	50-60	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
672:						
Rock outcrop	0-60	---	---	---	---	---
673:						
Westbutte, north	0-3	10-19	6.6-7.3	0	0	0
	3-11	13-25	6.6-7.3	0	0	0
	11-21	13-23	6.6-7.8	0	0	0
	21-31	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
Pernty, south	0-3	6.0-15	6.6-7.8	0	0	0
	3-12	15-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---
674:						
Widowspring	0-7	10-21	6.6-7.8	0	0	0
	7-22	10-21	6.6-7.8	0	0	0
	22-43	14-26	6.6-7.8	0	0	0
	43-63	14-17	6.6-7.8	0	0	0
675:						
Wildcatbutte	0-4	17-41	6.6-7.8	0	0	0
	4-24	17-41	6.6-7.8	0	0.0-2.0	0-2
	24-60	15-35	6.6-8.4	0-1	0.0-4.0	0-2
Chesebro	0-4	20-40	6.6-7.3	0	0	0
	4-24	20-45	6.6-7.8	0	0	0
	24-60	15-40	6.6-7.8	0	0	0
Glassbutte	0-4	19-43	6.6-7.8	0	0	0
	4-12	19-43	6.6-7.8	0	0	0
	12-23	17-41	6.6-7.8	0	0	0
	23-46	15-37	7.4-7.8	1-3	0.0-4.0	0-2
	46-61	15-37	7.4-7.8	1-3	0.0-4.0	0-2
676:						
Wildcatbutte, south	0-4	17-41	6.6-7.8	0	0	0
	4-24	17-41	6.6-7.8	0	0.0-2.0	0-2
	24-60	15-35	6.6-8.4	0-1	0.0-4.0	0-2
Glencabin, north	0-5	17-41	6.1-7.3	0	0	0
	5-11	17-39	6.1-7.3	0	0	0
	11-25	17-37	6.1-7.3	0	0	0
	25-35	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
677:						
Wildcatbutte, south	0-4	17-41	6.6-7.8	0	0	0
	4-24	17-41	6.6-7.8	0	0.0-2.0	0-2
	24-60	15-35	6.6-8.4	0-1	0.0-4.0	0-2
Rock outcrop	0-60	---	---	---	---	---
678:						
Wildcatbutte	0-4	17-41	6.6-7.8	0	0	0
	4-24	17-41	6.6-7.8	0	0.0-2.0	0-2
	24-60	15-35	6.6-8.4	0-1	0.0-4.0	0-2
Rock outcrop	0-60	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	meq/100 g	pH	Pct	mmhos/cm	
679:						
Wildcatbutte	0-4	17-41	6.6-7.8	0	0	0
	4-24	17-41	6.6-7.8	0	0.0-2.0	0-2
	24-60	15-35	6.6-8.4	0-1	0.0-4.0	0-2
Suckerflat, south	0-8	17-41	7.4-7.8	0	0.0-2.0	0
	8-18	17-41	7.4-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
680:						
Winterim	0-1	---	4.5-5.5	0	0	0
	1-6	25-35	6.1-7.3	0	0	0
	6-13	25-35	6.1-7.3	0	0	0
	13-22	20-30	6.1-7.3	0	0	0
	22-46	20-30	6.1-7.3	0	0	0
	46-56	---	---	---	---	---
681:						
Wiskan	0-3	3.0-7.0	7.4-8.4	0	0	0
	3-10	7.0-10	7.4-8.4	0	0	0
	10-21	21-28	7.4-8.4	0	0	0
	21-23	14-18	7.4-8.4	0	0	0
	23-33	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
682:						
Xerolls, north	0-7	7.0-37	6.6-8.4	0-1	0.0-2.0	0
	7-11	7.0-37	6.6-8.4	0-2	0.0-2.0	0-2
	11-21	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
683:						
Xerolls, north	0-7	7.0-37	6.6-8.4	0-1	0.0-2.0	0
	7-11	7.0-37	6.6-8.4	0-2	0.0-2.0	0-2
	11-21	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
684:						
Yankeewell	0-3	7.0-10	7.4-9.0	0	0.0-2.0	0-4
	3-6	8.0-17	7.9-9.0	0	0.0-2.0	0-4
	6-11	18-24	7.9-9.0	1-3	4.0-8.0	13-30
	11-25	---	---	---	---	---
	25-35	---	---	---	---	---
685:						
Yankeewell	0-3	3.0-7.0	7.4-9.0	0	0.0-2.0	0-4
	3-6	8.0-17	7.9-9.0	0	0.0-2.0	0-4
	6-11	18-24	7.9-9.0	1-3	4.0-8.0	13-30
	11-25	---	---	---	---	---
	25-35	---	---	---	---	---
Noidee	0-2	3.0-10	7.9-9.0	0	2.0-4.0	2-10
	2-5	24-31	8.5-9.6	0	4.0-8.0	13-40
	5-16	17-31	8.5-9.6	1-5	8.0-16.0	20-60
	16-26	---	---	---	---	---

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
686:						
Yapoah, north	0-1	---	4.0-5.5	0	0	0
	1-6	17-47	6.6-7.3	0	0	0
	6-16	17-43	6.6-7.3	0	0	0
	16-36	17-43	6.6-7.3	0	0	0
	36-61	15-35	6.6-7.3	0	0	0
687:						
Yapoah, south	0-1	---	4.0-5.5	0	0	0
	1-6	17-47	6.6-7.3	0	0	0
	6-16	17-43	6.6-7.3	0	0	0
	16-36	17-43	6.6-7.3	0	0	0
	36-61	15-35	6.6-7.3	0	0	0
688:						
Youtlkue	0-5	16-36	7.9-8.4	0	0.0-2.0	0-2
	5-22	15-42	7.9-9.0	0-10	0.0-4.0	0-4
	22-32	7.0-17	7.9-9.0	0-2	0.0-4.0	0-4
	32-42	---	---	---	---	---
689:						
Zorravista	0-4	1.0-3.0	7.9-8.4	0-1	0.0-2.0	0-2
	4-60	1.0-3.0	7.4-9.0	0-1	0.0-16.0	0-20
690:						
Zorravista	0-4	1.0-3.0	7.9-8.4	0-1	0.0-2.0	0-2
	4-60	1.0-3.0	7.4-9.0	0-1	0.0-16.0	0-20
Hinton	0-1	1.0-7.0	7.4-8.4	0	0	0
	1-12	1.0-5.0	7.4-8.4	0	0	0
	12-18	3.0-7.0	6.6-8.4	1-3	0.0-2.0	0
	18-60	1.0-5.0	7.4-8.4	0-1	0.0-2.0	0
691:						
Lithic Haploxerolls	0-2	7.0-37	6.6-8.4	0-1	0.0-2.0	0
	2-11	7.0-37	6.6-8.4	0-2	0.0-2.0	0-2
	11-21	---	---	---	---	---
Lava flows	0-60	---	---	---	---	---
692:						
Steiger	0-1	---	4.5-5.5	0	0	0
	1-4	17-51	5.6-7.3	0	0	0
	4-12	17-51	6.1-7.3	0	0	0
	12-45	15-39	6.1-7.8	0	0	0
	45-60	5.0-13	6.6-7.3	0	0	0
693:						
Steiger, high elevation	0-1	---	4.5-5.5	0	0	0
	1-4	17-51	5.6-7.3	0	0	0
	4-12	17-51	6.1-7.3	0	0	0
	12-45	15-39	6.1-7.8	0	0	0
	45-60	5.0-13	6.6-7.3	0	0	0
694:						
Steiger, low landscape position	0-1	---	4.5-5.5	0	0	0
	1-4	17-51	5.6-7.3	0	0	0
	4-12	17-51	6.1-7.3	0	0	0
	12-45	15-39	6.1-7.8	0	0	0
	45-60	5.0-13	6.6-7.3	0	0	0

Table 9.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
695:						
Ninemile, hummocky---	0-2	7.0-19	6.6-7.8	0	0.0-1.0	0
	2-17	25-45	6.6-7.8	0-1	0.0-2.0	0-5
	17-27	---	---	---	---	---
696:						
Shanahan-------------	0-4	15-37	6.6-7.3	0	0	0
	4-9	15-37	6.6-7.3	0	0	0
	9-38	15-35	6.6-7.3	0	0	0
	38-60	7.0-10	6.6-7.3	0	0	0
888:						
Denied access--------	---	---	---	---	---	---
999:						
Water----------------	---	---	---	---	---	---

Table 10.—Water Features

(Depths of layers are in inches. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated. In the "Water table" column, more than one value given for a month for the upper and lower limits indicates that the soil has both a perched and an apparent water table.)

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
200:									
Abert	B	Jan-Dec	---	---	---	---	None	---	None
201:									
Actem	D	Jan-Dec	---	---	---	---	None	---	None
202:									
Alyan	C	Jan-Dec	---	---	---	---	None	---	None
203:									
Anawalt	D	Jan-Dec	---	---	---	---	None	---	None
204:									
Anawalt	D	Jan-Dec	---	---	---	---	None	---	None
205:									
Anawalt	D	Jan-Dec	---	---	---	---	None	---	None
Freznik	D	Jan-Dec	---	---	---	---	None	---	None
206:									
Anawalt	D	Jan-Dec	---	---	---	---	None	---	None
Oreneva	C	Jan-Dec	---	---	---	---	None	---	None
207:									
Anawalt	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
207:									
Raz	D								
		Jan-Dec	---	---	---	---	None	---	None
208:									
Anawalt	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
209:									
Atlow	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
210:									
Baconcamp	C								
		Jan-Dec	---	---	---	---	None	---	None
Clamp	D								
		Jan-Dec	---	---	---	---	None	---	None
211:									
Baconcamp	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
212:									
Bluesters	A								
		Jan-Dec	---	---	---	---	None	---	None
213:									
Bluesters, dry	A								
		Jan-Dec	---	---	---	---	None	---	None
214:									
Boilout	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			In	*In*	*In*				
215:									
Bonnick	A								
		Jan-Dec	---	---	---	---	None	---	None
216:									
Bonnick	A								
		Jan-Dec	---	---	---	---	None	---	None
217:									
Bonnick	A								
		Jan-Dec	---	---	---	---	None	---	None
Fort Rock	A								
		Jan-Dec	---	---	---	---	None	---	None
218:									
Bonnick	A								
		Jan-Dec	---	---	---	---	None	---	None
Fort Rock	A								
		Jan-Dec	---	---	---	---	None	---	None
219:									
Bonnick, low precipitation	A								
		Jan-Dec	---	---	---	---	None	---	None
Fort Rock, low precipitation	A								
		Jan-Dec	---	---	---	---	None	---	None
220:									
Bonnick	A								
		Jan-Dec	---	---	---	---	None	---	None
Kunceider	D								
		Jan-Dec	---	---	---	---	None	---	None
221:									
Bonnick	A								
		Jan-Dec	---	---	---	---	None	---	None
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
222:									
Booth	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			In	*In*	*In*				
223:									
Booth	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
224:									
Borobey	C								
		Jan-Dec	---	---	---	---	None	---	None
225:									
Borobey	C								
		Jan-Dec	---	---	---	---	None	---	None
226:									
Borobey	C								
		Jan-Dec	---	---	---	---	None	---	None
227:									
Borobey	C								
		Jan-Dec	---	---	---	---	None	---	None
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
228:									
Borobey	C								
		Jan-Dec	---	---	---	---	None	---	None
Oatmanflat	A								
		Jan-Dec	---	---	---	---	None	---	None
229:									
Borobey	C								
		Jan-Dec	---	---	---	---	None	---	None
Overallflat	C/D								
		January	0	6-9	0-6	Brief	Occasional	---	None
		February	0	6-9	0-6	Brief	Occasional	---	None
		March	0	6-9	0-6	Brief	Occasional	---	None
230:									
Brabble	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
230:									
Calderwood	D								
		Jan-Dec	---	---	---	---	None	---	None
231:									
Brace	C								
		Jan-Dec	---	---	---	---	None	---	None
Foleylake	D								
		Jan-Dec	---	---	---	---	None	---	None
232:									
Bridgewell	C/D								
		January	0-30	>72	0-36	Very long	Occasional	---	None
		February	0-30	>72	0-36	Very long	Occasional	---	None
		March	0-30	>72	0-36	Very long	Occasional	---	None
		April	0-30	>72	0-36	Very long	Occasional	---	None
		May	0-30	>72	0-36	Very long	Occasional	---	None
		June	0-30	>72	0-36	Very long	Occasional	---	None
		July	0-30	>72	0-36	Very long	Occasional	---	None
		August	30-60	>72	---	---	None	---	None
		September	30-60	>72	---	---	None	---	None
		October	30-60	>72	---	---	None	---	None
		November	30-60	>72	---	---	None	---	None
		December	0-30	>72	0-36	Very long	Occasional	---	None
233:									
Bridgewell	C/D								
		January	0-2	7-14	0-4	Long	Frequent	---	None
		February	0-2	7-14	0-4	Long	Frequent	---	None
		March	0-2	7-14	0-4	Long	Frequent	---	None
		April	0-2	7-14	0-4	Long	Frequent	---	None
		May	0-2	7-14	0-4	Long	Frequent	---	None
		June	0-2	7-14	0-4	Long	Frequent	---	None
234:									
Bullump, south	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Nuss, south	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
236:									
Bunyard	C								
		Jan-Dec	---	---	---	---	None	---	None
237:									
Cabinspring	C								
		Jan-Dec	---	---	---	---	None	---	None
Chesebro	B								
		Jan-Dec	---	---	---	---	None	---	None
Hayespring	C								
		Jan-Dec	---	---	---	---	None	---	None
238:									
Calderwood	D								
		Jan-Dec	---	---	---	---	None	---	None
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None
239:									
Carryback, eroded	D								
		Jan-Dec	---	---	---	---	None	---	None
240:									
Carryback	D								
		Jan-Dec	---	---	---	---	None	---	None
241:									
Carryback	D								
		Jan-Dec	---	---	---	---	None	---	None
Pearlwise	C								
		Jan-Dec	---	---	---	---	None	---	None
242:									
Carvix	B								
		Jan-Dec	---	---	---	---	None	---	None
243:									
Catlow	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
244:									
Catlow	C								
		Jan-Dec	---	---	---	---	None	---	None
Davey	A								
		Jan-Dec	---	---	---	---	None	---	None
245:									
Catnapp	D								
		Jan-Dec	---	---	---	---	None	---	None
246:									
Chancelakes	D								
		January	0-1	1-10	0-12	Long	Frequent	---	None
		February	0-1	1-10	0-12	Long	Frequent	---	None
		March	0-1	1-10	0-12	Long	Frequent	---	None
			29-60	>72					
		April	0-1	1-10	0-12	Long	Frequent	---	None
			29-44	>72					
		May	0-1	1-10	0-12	Long	Frequent	---	None
			29-44	>72					
		June	29-60	>72	---	---	None	---	None
Silverash	C/D								
		January	0-8	7-9	---	---	None	---	None
		February	0-8	7-9	---	---	None	---	None
		March	0-8	7-9	0-12	Long	Frequent	---	None
		April	0-8	7-9	0-12	Long	Frequent	---	None
		May	0-8	7-9	0-12	Long	Frequent	---	None
		June	0-8	7-9	---	---	None	---	None
		July	0-8	7-9	---	---	None	---	None
247:									
Chen	D								
		Jan-Dec	---	---	---	---	None	---	None
Erakatak	C								
		Jan-Dec	---	---	---	---	None	---	None
Lambring, north	A								
		Jan-Dec	---	---	---	---	None	---	None
248:									
Chesebro	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
248:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
249:									
Cinderfall	A								
		Jan-Dec	---	---	---	---	None	---	None
Fort Rock	A								
		Jan-Dec	---	---	---	---	None	---	None
Kunceider	D								
		Jan-Dec	---	---	---	---	None	---	None
250:									
Cleavage	D								
		Jan-Dec	---	---	---	---	None	---	None
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Westbutte	C								
		Jan-Dec	---	---	---	---	None	---	None
251:									
Cleet	D								
		Jan-Dec	---	---	---	---	None	---	None
252:									
Clurde	C								
		Jan-Dec	---	---	---	---	None	---	None
253:									
Clurde	B								
		Jan-Dec	---	---	---	---	None	---	None
Toll	A								
		Jan-Dec	---	---	---	---	None	---	None
254:									
Connleyhills	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			In	*In*	*In*				
255:									
Connleyhills	D								
		Jan-Dec	---	---	---	---	None	---	None
256:									
Cooperdraw	C								
		Jan-Dec	---	---	---	---	None	---	None
Fertaline	D								
		Jan-Dec	---	---	---	---	None	---	None
257:									
Corral, low precipitation	D								
		Jan-Dec	---	---	---	---	None	---	None
258:									
Coztur	D								
		Jan-Dec	---	---	---	---	None	---	None
259:									
Crackedground	A								
		Jan-Dec	---	---	---	---	None	---	None
260:									
Crackedground	A								
		Jan-Dec	---	---	---	---	None	---	None
261:									
Crackedground	A								
		Jan-Dec	---	---	---	---	None	---	None
Kunceider	D								
		Jan-Dec	---	---	---	---	None	---	None
262:									
Crackedground	A								
		Jan-Dec	---	---	---	---	None	---	None
Milcan	B								
		Jan-Dec	---	---	---	---	None	---	None
263:									
Crackedground	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
263:									
Milcan	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
264:									
Crackedground	A								
		Jan-Dec	---	---	---	---	None	---	None
Wegert	A								
		Jan-Dec	---	---	---	---	None	---	None
266:									
Deppy	D								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	---								
		Jan-Dec	---	---	---	---	None	---	None
267:									
Deppy	D								
		Jan-Dec	---	---	---	---	None	---	None
Tumtum	D								
		Jan-Dec	---	---	---	---	None	---	None
268:									
Derallo	C								
		Jan-Dec	---	---	---	---	None	---	None
Chesebro	B								
		Jan-Dec	---	---	---	---	None	---	None
269:									
Derallo, north	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
270:									
Derallo, south	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
270:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
271:									
Diablopeak	D								
		Jan-Dec	---	---	---	---	None	---	None
Yankeewell	D								
		Jan-Dec	---	---	---	---	None	---	None
272:									
Drakesflat	D								
		Jan-Dec	---	---	---	---	None	---	None
273:									
Drakesflat	D								
		Jan-Dec	---	---	---	---	None	---	None
274:									
Dune land	---								
		Jan-Dec	---	---	---	---	None	---	None
275:									
Dune land	---								
		Jan-Dec	---	---	---	---	None	---	None
Fossilake	B/D								
		January	30-48	>72	---	---	None	---	None
		February	0	2-2	0-6	Long	Frequent	---	None
			30-48	>72					
		March	0	2-2	0-6	Long	Frequent	---	None
			30-48	>72					
		April	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		May	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		June	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		July	30-48	>72	---	---	None	---	None
		August	30-48	>72	---	---	None	---	None
		September	43-48	>72	---	---	None	---	None
		October	43-48	>72	---	---	None	---	None
		November	43-48	>72	---	---	None	---	None
		December	43-48	>72	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
275:									
Salhouse	A								
		Jan-Dec	---	---	---	---	None	---	None
276:									
Dune land	---								
		Jan-Dec	---	---	---	---	None	---	None
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
277:									
Dune land	---								
		Jan-Dec	---	---	---	---	None	---	None
Salhouse	A								
		Jan-Dec	---	---	---	---	None	---	None
278:									
Dunres	D								
		Jan-Dec	---	---	---	---	None	---	None
279:									
Dunres, thick surface	D								
		Jan-Dec	---	---	---	---	None	---	None
280:									
Dunres	D								
		Jan-Dec	---	---	---	---	None	---	None
281:									
Dunres	D								
		Jan-Dec	---	---	---	---	None	---	None
Henkle	B								
		Jan-Dec	---	---	---	---	None	---	None
282:									
Dunres	D								
		Jan-Dec	---	---	---	---	None	---	None
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
283:									
Dunres	D								
		Jan-Dec	---	---	---	---	None	---	None
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
Nuss	D								
		Jan-Dec	---	---	---	---	None	---	None
284:									
Dunres	D								
		Jan-Dec	---	---	---	---	None	---	None
Murlose	D								
		Jan-Dec	---	---	---	---	None	---	None
Nuss	D								
		Jan-Dec	---	---	---	---	None	---	None
285:									
Dunres	D								
		Jan-Dec	---	---	---	---	None	---	None
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
286:									
Dunres	D								
		Jan-Dec	---	---	---	---	None	---	None
Norcross, cobbly ashy loam surface	D								
		Jan-Dec	---	---	---	---	None	---	None
Norcross, very cobbly ashy fine sandy loam surface	D								
		Jan-Dec	---	---	---	---	None	---	None
287:									
Edemaps	C								
		Jan-Dec	---	---	---	---	None	---	None
Pernty	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
287:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
288:									
Embal	A								
		Jan-Dec	---	---	---	---	None	---	None
289:									
Embal	A								
		Jan-Dec	---	---	---	---	None	---	None
Paulina	B/D								
		February	20-40	>72	---	---	None	Long	Occasional
		March	0-20	>72	---	---	None	Long	Occasional
		April	0-20	>72	---	---	None	Long	Occasional
		May	0-20	>72	---	---	None	Long	Occasional
		June	20-40	>72	---	---	None	Long	Occasional
290:									
Enko	C								
		Jan-Dec	---	---	---	---	None	---	None
291:									
Enko	C								
		Jan-Dec	---	---	---	---	None	---	None
292:									
Enko	C								
		Jan-Dec	---	---	---	---	None	---	None
293:									
Enko	C								
		Jan-Dec	---	---	---	---	None	---	None
Catlow	C								
		Jan-Dec	---	---	---	---	None	---	None
294:									
Enko	C								
		Jan-Dec	---	---	---	---	None	---	None
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro- logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			In	In	In				
295:									
Erakatak	C								
		Jan-Dec	---	---	---	---	None	---	None
296:									
Erakatak	C								
		Jan-Dec	---	---	---	---	None	---	None
Carryback	D								
		Jan-Dec	---	---	---	---	None	---	None
297:									
Erakatak	C								
		Jan-Dec	---	---	---	---	None	---	None
Leevan, south	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
298:									
Erakatak	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
299:									
Erakatak	C								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	---								
		Jan-Dec	---	---	---	---	None	---	None
300:									
Felcher, south	C								
		Jan-Dec	---	---	---	---	None	---	None
Camptank	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
301:									
Felcher, south	C								
		Jan-Dec	---	---	---	---	None	---	None
Fitzwater, north	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
302:									
Felcher, south	C								
		Jan-Dec	---	---	---	---	None	---	None
Oreneva, north	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
303:									
Felcher, south	C								
		Jan-Dec	---	---	---	---	None	---	None
Riddleranch	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
304:									
Felcher, south	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
305:									
Felcher, south	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
306:									
Felcher, south	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
307:									
Felcher, south	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
Brezniak	D	Jan-Dec	---	---	---	---	None	---	None
308:									
Felcher, south	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
Westbutte, north	C	Jan-Dec	---	---	---	---	None	---	None
309:									
Firelake	D	Jan-Dec	---	---	---	---	None	---	None
Enko	C	Jan-Dec	---	---	---	---	None	---	None
310:									
Fitzwater, south	B	Jan-Dec	---	---	---	---	None	---	None
311:									
Fitzwater, north	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
312:									
Flagstaff	B								
		February	24-40	>72	---	---	None	---	None
		March	24-40	>72	---	---	None	---	None
		April	24-40	>72	---	---	None	---	None
313:									
Flagstaff, ashy very fine sandy loam surface	D								
		January	0-4	1-10	0-3	Brief	Occasional	---	None
		February	0-4	1-10	0-3	Brief	Occasional	---	None
		March	0-4	1-10	0-3	Brief	Occasional	---	None
Flagstaff, ashy sandy loam surface	D								
		January	0-4	1-10	0-3	Brief	Occasional	---	None
		February	0-4	1-10	0-3	Brief	Occasional	---	None
		March	0-4	1-10	0-3	Brief	Occasional	---	None
314:									
Flagstaff	D								
		January	0-4	1-10	0-3	Brief	Occasional	---	None
		February	0-4	1-10	0-3	Brief	Occasional	---	None
		March	0-4	1-10	0-3	Brief	Occasional	---	None
Playas	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None
315:									
Flagstaff	D								
		January	0-4	1-10	0-3	Brief	Occasional	---	None
		February	0-4	1-10	0-3	Brief	Occasional	---	None
		March	0-4	1-10	0-3	Brief	Occasional	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table Upper limit	Water table Lower limit	Ponding Surface water depth	Ponding Duration	Ponding Frequency	Flooding Duration	Flooding Frequency
			In	*In*	*In*				
315:									
Salhouse	A	Jan-Dec	---	---	---	---	None	---	None
316:									
Foleylake	D	Jan-Dec	---	---	---	---	None	---	None
Anawalt	D	Jan-Dec	---	---	---	---	None	---	None
317:									
Fort Rock	A	Jan-Dec	---	---	---	---	None	---	None
318:									
Fort Rock	A	Jan-Dec	---	---	---	---	None	---	None
319:									
Fort Rock	A	Jan-Dec	---	---	---	---	None	---	None
Bonnick	A	Jan-Dec	---	---	---	---	None	---	None
320:									
Fort Rock	A	Jan-Dec	---	---	---	---	None	---	None
Lapham	A	Jan-Dec	---	---	---	---	None	---	None
321:									
Fort Rock, warm	A	Jan-Dec	---	---	---	---	None	---	None
Lapham, warm	A	Jan-Dec	---	---	---	---	None	---	None
322:									
Fort Rock	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			In	In	In				
322:									
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
323:									
Fort Rock	A								
		Jan-Dec	---	---	---	---	None	---	None
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
324:									
Fort Rock, moist	A								
		Jan-Dec	---	---	---	---	None	---	None
Morehouse, moist	A								
		Jan-Dec	---	---	---	---	None	---	None
325:									
Fort Rock	A								
		Jan-Dec	---	---	---	---	None	---	None
Suckerflat	D								
		Jan-Dec	---	---	---	---	None	---	None
326:									
Fossilake	B/D								
		January	30-48	>72	---	---	None	---	None
		February	0	2-2	0-6	Long	Frequent	---	None
			30-48	>72					
		March	0	2-2	0-6	Long	Frequent	---	None
			30-48	>72					
		April	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		May	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		June	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		July	30-48	>72	---	---	None	---	None
		August	30-48	>72	---	---	None	---	None
		September	43-48	>72	---	---	None	---	None
		October	43-48	>72	---	---	None	---	None
		November	43-48	>72	---	---	None	---	None
		December	43-48	>72	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
327:									
Fossilake, cool	B/D								
		January	30-48	>72	---	---	None	---	None
		February	0	2-2	0-6	Long	Frequent	---	None
			30-48	>72					
		March	0	2-2	0-6	Long	Frequent	---	None
			30-48	>72					
		April	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		May	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		June	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		July	30-48	>72	---	---	None	---	None
		August	30-48	>72	---	---	None	---	None
		September	43-48	>72	---	---	None	---	None
		October	43-48	>72	---	---	None	---	None
		November	43-48	>72	---	---	None	---	None
		December	43-48	>72	---	---	None	---	None
Salhouse, cool	A								
		Jan-Dec	---	---	---	---	None	---	None
328:									
Giranch	C								
		Jan-Dec	---	---	---	---	None	---	None
Meld	C								
		Jan-Dec	---	---	---	---	None	---	None
329:									
Glencabin, south	B								
		Jan-Dec	---	---	---	---	None	---	None
330:									
Glencabin, north	B								
		Jan-Dec	---	---	---	---	None	---	None
331:									
Glencabin, south	B								
		Jan-Dec	---	---	---	---	None	---	None
332:									
Glencabin, south, dry	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
332:									
Glencabin, north, dry	B								
		Jan-Dec	---	---	---	---	None	---	None
333:									
Glencabin	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
334:									
Glencabin	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
335:									
Glencabin, gravelly ashy loamy sand surface	B								
		Jan-Dec	---	---	---	---	None	---	None
Glencabin, ashy loamy sand surface	B								
		Jan-Dec	---	---	---	---	None	---	None
Wanoga	A								
		Jan-Dec	---	---	---	---	None	---	None
336:									
Glencabin	B								
		Jan-Dec	---	---	---	---	None	---	None
Yapoah	A								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
338:									
Goodtack	D								
		Jan-Dec	---	---	---	---	None	---	None
339:									
Goodtack, low precipitation	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
340:									
Goodtack	D								
		Jan-Dec	---	---	---	---	None	---	None
Borobey	C								
		Jan-Dec	---	---	---	---	None	---	None
341:									
Goodtack	D								
		Jan-Dec	---	---	---	---	None	---	None
Borobey	C								
		Jan-Dec	---	---	---	---	None	---	None
342:									
Goodtack	D								
		Jan-Dec	---	---	---	---	None	---	None
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
343:									
Goodtack	D								
		Jan-Dec	---	---	---	---	None	---	None
Sliptrack	C								
		Jan-Dec	---	---	---	---	None	---	None
344:									
Gradon	C								
		Jan-Dec	---	---	---	---	None	---	None
345:									
Greenmountain	C								
		Jan-Dec	---	---	---	---	None	---	None
346:									
Greenmountain	C								
		Jan-Dec	---	---	---	---	None	---	None
Jacksplace	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
347:									
Greenmountain	C	Jan-Dec	---	---	---	---	None	---	None
Lastcall	B	Jan-Dec	---	---	---	---	None	---	None
348:									
Greenmountain	C	Jan-Dec	---	---	---	---	None	---	None
Weglike	C	Jan-Dec	---	---	---	---	None	---	None
349:									
Hackwood	B	Jan-Dec	---	---	---	---	None	---	None
Westbutte, north	C	Jan-Dec	---	---	---	---	None	---	None
350:									
Hager, cobbly loam surface	C	Jan-Dec	---	---	---	---	None	---	None
Hager, extremely stony loam surface	C	Jan-Dec	---	---	---	---	None	---	None
351:									
Hayespring	C	Jan-Dec	---	---	---	---	None	---	None
352:									
Hayespring	C	Jan-Dec	---	---	---	---	None	---	None
Dunres	D	Jan-Dec	---	---	---	---	None	---	None
353:									
Hayespring	C	Jan-Dec	---	---	---	---	None	---	None
Moonbeam	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
354:									
Hayespring	C								
		Jan-Dec	---	---	---	---	None	---	None
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
355:									
Hayespring, cobbly ashy loamy sand surface	C								
		Jan-Dec	---	---	---	---	None	---	None
Moonbeam, cobbly ashy loam surface	D								
		Jan-Dec	---	---	---	---	None	---	None
356:									
Hayespring, low precipitation	C								
		Jan-Dec	---	---	---	---	None	---	None
Moonbeam, low precipitation	D								
		Jan-Dec	---	---	---	---	None	---	None
357:									
Hayespring	C								
		Jan-Dec	---	---	---	---	None	---	None
Senra	D								
		Jan-Dec	---	---	---	---	None	---	None
358:									
Helphenstein	C/D								
		January	48-60	>72	---	---	None	---	None
		February	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		March	0	2-2	0-6	Long	Occasional	---	None
			24-34	>72					
		April	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		May	0	2-2	0-6	Long	Occasional	---	None
			48-60	>72					
		November	48-60	>72	---	---	None	---	None
		December	48-60	>72	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			In	In	In				
359:									
Helphenstein, frequently ponded	C/D								
		January	48-60	>72	---	---	None	---	None
		February	0	2-2	0-4	Long	Frequent	---	None
			24-48	>72					
		March	0	2-2	0-4	Long	Frequent	---	None
			24-34	>72					
		April	0	2-2	0-4	Long	Frequent	---	None
			24-48	>72					
		May	0	2-2	0-4	Long	Frequent	---	None
			48-60	>72					
		November	48-60	>72	---	---	None	---	None
		December	48-60	>72	---	---	None	---	None
360:									
Helphenstein	C/D								
		January	48-60	>72	---	---	None	---	None
		February	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		March	0	2-2	0-6	Long	Occasional	---	None
			24-34	>72					
		April	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		May	0	2-2	0-6	Long	Occasional	---	None
			48-60	>72					
		November	48-60	>72	---	---	None	---	None
		December	48-60	>72	---	---	None	---	None
361:									
Helphenstein	C/D								
		January	48-60	>72	---	---	None	---	None
		February	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		March	0	2-2	0-6	Long	Occasional	---	None
			24-34	>72					
		April	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		May	0	2-2	0-6	Long	Occasional	---	None
			48-60	>72					
		November	48-60	>72	---	---	None	---	None
		December	48-60	>72	---	---	None	---	None
Kewake	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			In	*In*	*In*				
362:									
Helphenstein, frequently ponded	B/D								
		January	39-50	>72	---	---	None	---	None
		February	18-39	>72	---	---	None	---	None
		March	0	2-2	0-6	Brief	Frequent	---	None
			9-18	>72					
		April	0	2-2	0-6	Brief	Frequent	---	None
			18-39	>72					
		May	0	2-2	0-6	Brief	Frequent	---	None
			39-50	>72					
		June	0	2-2	0-6	Brief	Frequent	---	None
			39-60	>72					
		July	39-60	>72	---	---	None	---	None
		November	39-60	>72	---	---	None	---	None
		December	39-60	>72	---	---	None	---	None
Legler	C								
		Jan-Dec	---	---	---	---	None	---	None
Playas	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
363:									
Helphenstein, frequently ponded	C/D								
		January	48-60	>72	---	---	None	---	None
		February	0	2-2	0-4	Long	Frequent	---	None
			24-48	>72					
		March	0	2-2	0-4	Long	Frequent	---	None
			24-34	>72					
		April	0	2-2	0-4	Long	Frequent	---	None
			24-48	>72					
		May	0	2-2	0-4	Long	Frequent	---	None
			48-60	>72					
		November	48-60	>72	---	---	None	---	None
		December	48-60	>72	---	---	None	---	None
Pitcheranch	C/D								
		January	0-35	>72	---	---	None	---	None
		February	0-35	>72	0-4	Long	Frequent	---	None
		March	0-8	>72	0-4	Long	Frequent	---	None
		April	0-8	>72	0-4	Long	Frequent	---	None
		May	0-8	>72	0-4	Long	Frequent	---	None
		June	0-8	>72	0-4	Long	Frequent	---	None
		July	0	2-2	0-4	Long	Frequent	---	None
			8-20	>72					
		August	20-60	>72	---	---	None	---	None
		September	20-60	>72	---	---	None	---	None
		October	8-35	>72	---	---	None	---	None
		November	0-35	>72	---	---	None	---	None
		December	0-35	>72	---	---	None	---	None
Reese	C/D								
		January	44-60	>72	---	---	None	---	None
		February	36-44	>72	---	---	None	---	None
		March	12-36	>72	---	---	None	---	Rare
		April	12-36	>72	---	---	None	---	Rare
		May	12-36	>72	---	---	None	---	Rare
		June	12-36	>72	---	---	None	---	Rare
		July	12-36	>72	---	---	None	---	None
		August	36-44	>72	---	---	None	---	None
		November	44-60	>72	---	---	None	---	None
		December	44-60	>72	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
364:									
Helphenstein	C/D								
		January	48-60	>72	---	---	None	---	None
		February	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		March	0	2-2	0-6	Long	Occasional	---	None
			24-34	>72					
		April	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		May	0	2-2	0-6	Long	Occasional	---	None
			48-60	>72					
		November	48-60	>72	---	---	None	---	None
		December	48-60	>72	---	---	None	---	None
Turpin	B								
		Jan-Dec	---	---	---	---	None	---	None
Kewake	A								
		Jan-Dec	---	---	---	---	None	---	None
365:									
Henkle	B								
		Jan-Dec	---	---	---	---	None	---	None
Ludi	A								
		Jan-Dec	---	---	---	---	None	---	None
366:									
Henkle	B								
		Jan-Dec	---	---	---	---	None	---	None
Wanoga	A								
		Jan-Dec	---	---	---	---	None	---	None
367:									
Henkle, dry	B								
		Jan-Dec	---	---	---	---	None	---	None
Wanoga, dry	A								
		Jan-Dec	---	---	---	---	None	---	None
368:									
Horning	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
369:									
Horning	A								
		Jan-Dec	---	---	---	---	None	---	None
Tonor	B								
		Jan-Dec	---	---	---	---	None	---	None
370:									
Icene	C								
		January	30-40	>72	---	---	None	---	None
		February	24-40	>72	---	---	None	---	None
		March	24-30	>72	---	---	None	---	None
		April	24-40	>72	---	---	None	---	None
		May	40-60	>72	---	---	None	---	None
		November	40-60	>72	---	---	None	---	None
		December	40-60	>72	---	---	None	---	None
Playas	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None
371:									
Ipsoot	A								
		Jan-Dec	---	---	---	---	None	---	None
372:									
Ipsoot, north	A								
		Jan-Dec	---	---	---	---	None	---	None
373:									
Ipsoot, south	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
374:									
Jacksplace, moist	C	Jan-Dec	---	---	---	---	None	---	None
375:									
Jacksplace	C	Jan-Dec	---	---	---	---	None	---	None
376:									
Jacksplace	C	Jan-Dec	---	---	---	---	None	---	None
377:									
Jacksplace	C	Jan-Dec	---	---	---	---	None	---	None
378:									
Jacksplace	C	Jan-Dec	---	---	---	---	None	---	None
Derallo	C	Jan-Dec	---	---	---	---	None	---	None
Glencabin	B	Jan-Dec	---	---	---	---	None	---	None
379:									
Jacksplace	C	Jan-Dec	---	---	---	---	None	---	None
Senra	D	Jan-Dec	---	---	---	---	None	---	None
380:									
Kewake	A	Jan-Dec	---	---	---	---	None	---	None
382:									
Kewake	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
382:									
Helphenstein, frequently ponded	C/D								
		January	48-60	>72	---	---	None	---	None
		February	0	2-2	0-4	Long	Frequent	---	None
			24-48	>72					
		March	0	2-2	0-4	Long	Frequent	---	None
			24-34	>72					
		April	0	2-2	0-4	Long	Frequent	---	None
			24-48	>72					
		May	0	2-2	0-4	Long	Frequent	---	None
			48-60	>72					
		November	48-60	>72	---	---	None	---	None
		December	48-60	>72	---	---	None	---	None
383:									
Kewake	A								
		Jan-Dec	---	---	---	---	None	---	None
Helphenstein, dry	C/D								
		January	48-60	>72	---	---	None	---	None
		February	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		March	0	2-2	0-6	Long	Occasional	---	None
			24-34	>72					
		April	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		May	0	2-2	0-6	Long	Occasional	---	None
			48-60	>72					
		November	48-60	>72	---	---	None	---	None
		December	48-60	>72	---	---	None	---	None
384:									
Kewake	A								
		Jan-Dec	---	---	---	---	None	---	None
Icene	C								
		January	30-40	>72	---	---	None	---	None
		February	24-40	>72	---	---	None	---	None
		March	24-30	>72	---	---	None	---	None
		April	24-40	>72	---	---	None	---	None
		May	40-60	>72	---	---	None	---	None
		November	40-60	>72	---	---	None	---	None
		December	40-60	>72	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
385:									
Kewake	A								
		Jan-Dec	---	---	---	---	None	---	None
Ozamis	C/D								
		March	12-48	>72	---	---	None	---	Rare
		April	12-48	>72	---	---	None	---	Rare
		May	12-48	>72	---	---	None	---	Rare
		June	12-48	>72	---	---	None	---	Rare
Reese	C/D								
		January	44-60	>72	---	---	None	---	None
		February	36-44	>72	---	---	None	---	None
		March	12-36	>72	---	---	None	---	Rare
		April	12-36	>72	---	---	None	---	Rare
		May	12-36	>72	---	---	None	---	Rare
		June	12-36	>72	---	---	None	---	Rare
		July	12-36	>72	---	---	None	---	None
		August	36-44	>72	---	---	None	---	None
		November	44-60	>72	---	---	None	---	None
		December	44-60	>72	---	---	None	---	None
386:									
Kewake	A								
		Jan-Dec	---	---	---	---	None	---	None
Turpin	A								
		Jan-Dec	---	---	---	---	None	---	None
387:									
Kewake, sodic	A								
		Jan-Dec	---	---	---	---	None	---	None
Turpin, sodic	A								
		Jan-Dec	---	---	---	---	None	---	None
388:									
Krackle, north	C								
		Jan-Dec	---	---	---	---	None	---	None
Krackle, south	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
389:									
Kunceider	D	Jan-Dec	---	---	---	---	None	---	None
390:									
Kunceider	D	Jan-Dec	---	---	---	---	None	---	None
Fort Rock	A	Jan-Dec	---	---	---	---	None	---	None
391:									
Kunceider	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
392:									
Kunceider	D	Jan-Dec	---	---	---	---	None	---	None
Wegert	A	Jan-Dec	---	---	---	---	None	---	None
393:									
Laidlaw	A	Jan-Dec	---	---	---	---	None	---	None
394:									
Laidlaw	A	Jan-Dec	---	---	---	---	None	---	None
395:									
Laidlaw, dry	A	Jan-Dec	---	---	---	---	None	---	None
Wanoga, dry	A	Jan-Dec	---	---	---	---	None	---	None
397:									
Lapham	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
398:									
Lapine, north	A								
		Jan-Dec	---	---	---	---	None	---	None
399:									
Lapine	A								
		Jan-Dec	---	---	---	---	None	---	None
400:									
Lapine	A								
		Jan-Dec	---	---	---	---	None	---	None
401:									
Lastcall	C								
		Jan-Dec	---	---	---	---	None	---	None
402:									
Lastcall, gently sloping	C								
		Jan-Dec	---	---	---	---	None	---	None
Lastcall, nearly level	C								
		Jan-Dec	---	---	---	---	None	---	None
403:									
Lastcall	C								
		Jan-Dec	---	---	---	---	None	---	None
Hayespring	C								
		Jan-Dec	---	---	---	---	None	---	None
404:									
Lastcall	B								
		Jan-Dec	---	---	---	---	None	---	None
Hayespring	C								
		Jan-Dec	---	---	---	---	None	---	None
405:									
Lastcall	C								
		Jan-Dec	---	---	---	---	None	---	None
Jacksplace	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
405:									
Embal	B								
		Jan-Dec	---	---	---	---	None	---	None
407:									
Lastcall	B								
		Jan-Dec	---	---	---	---	None	---	None
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
408:									
Leevan	C								
		Jan-Dec	---	---	---	---	None	---	None
Fitzwater, south	A								
		Jan-Dec	---	---	---	---	None	---	None
Chen	A								
		Jan-Dec	---	---	---	---	None	---	None
409:									
Leevan, north	D								
		Jan-Dec	---	---	---	---	None	---	None
Lambring, north	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
410:									
Legler	C								
		Jan-Dec	---	---	---	---	None	---	None
411:									
Bridgewell	C/D								
		January	0-7	7-14	0-4	Long	Frequent	---	None
		February	0-7	7-14	0-4	Long	Frequent	---	None
		March	0-7	7-14	0-4	Long	Frequent	---	None
		April	0-7	7-14	0-4	Long	Frequent	---	None
		May	0-7	7-14	0-4	Long	Frequent	---	None
Legler	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
412:									
Bridgewell	C/D								
		January	0-7	7-14	0-4	Long	Frequent	---	None
		February	0-7	7-14	0-4	Long	Frequent	---	None
		March	0-7	7-14	0-4	Long	Frequent	---	None
		April	0-7	7-14	0-4	Long	Frequent	---	None
		May	0-7	7-14	0-4	Long	Frequent	---	None
Chancelakes	D								
		January	0-1	1-10	0-12	Long	Frequent	---	None
		February	0-1	1-10	0-12	Long	Frequent	---	None
		March	0-1	1-10	0-12	Long	Frequent	---	None
			29-60	>72					
		April	0-1	1-10	0-12	Long	Frequent	---	None
			29-44	>72					
		May	0-1	1-10	0-12	Long	Frequent	---	None
			29-44	>72					
		June	29-60	>72	---	---	None	---	None
413:									
Lithic Haploxerolls, cool	D								
		Jan-Dec	---	---	---	---	None	---	None
Lava flows	---								
		Jan-Dec	---	---	---	---	None	---	None
414:									
Lithic Haploxerolls, dry	D								
		Jan-Dec	---	---	---	---	None	---	None
Lava flows	---								
		Jan-Dec	---	---	---	---	None	---	None
415:									
Locane	D								
		Jan-Dec	---	---	---	---	None	---	None
416:									
Locane	D								
		Jan-Dec	---	---	---	---	None	---	None
Anawalt	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
417:									
Locane	D								
		Jan-Dec	---	---	---	---	None	---	None
Deseed	D								
		Jan-Dec	---	---	---	---	None	---	None
418:									
Locolake	D								
		Jan-Dec	---	---	---	---	None	---	None
419:									
Locolake	D								
		Jan-Dec	---	---	---	---	None	---	None
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None
420:									
Lostforest	B								
		Jan-Dec	---	---	---	---	None	---	None
Sandrock	D								
		Jan-Dec	---	---	---	---	None	---	None
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
422:									
Ludi	A								
		Jan-Dec	---	---	---	---	None	---	None
423:									
Ludi, low precipitation, north	A								
		Jan-Dec	---	---	---	---	None	---	None
424:									
Ludi, low precipitation, south	A								
		Jan-Dec	---	---	---	---	None	---	None
425:									
Ludi, low precipitation, north	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
426:									
Ludi, low precipitation, south	A								
		Jan-Dec	---	---	---	---	None	---	None
427:									
Ludi	A								
		Jan-Dec	---	---	---	---	None	---	None
428:									
Ludi, south	A								
		Jan-Dec	---	---	---	---	None	---	None
Glassbutte	A								
		Jan-Dec	---	---	---	---	None	---	None
Ludi, north	A								
		Jan-Dec	---	---	---	---	None	---	None
429:									
Ludi	A								
		Jan-Dec	---	---	---	---	None	---	None
Glassbutte	A								
		Jan-Dec	---	---	---	---	None	---	None
430:									
Lyeflat	A								
		Jan-Dec	---	---	---	---	None	---	None
431:									
Lyeflat	D								
		Jan-Dec	---	---	---	---	None	---	None
432:									
Lyeflat, gravelly sandy loam surface	D								
		Jan-Dec	---	---	---	---	None	---	None
Lyeflat, very cobbly sandy loam surface	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
433:									
Lyeflat	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
434:									
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None
435:									
McConnel, sodic substratum	A								
		Jan-Dec	---	---	---	---	None	---	None
436:									
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None
437:									
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None
438:									
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None
Davey	A								
		Jan-Dec	---	---	---	---	None	---	None
439:									
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None
Poorjug, overblown	D								
		Jan-Dec	---	---	---	---	None	---	None
440:									
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None
Turpin	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
441:									
McNye	A								
		Jan-Dec	---	---	---	---	None	---	None
Wildhill	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
442:									
Meld	C								
		Jan-Dec	---	---	---	---	None	---	None
Giranch	C								
		Jan-Dec	---	---	---	---	None	---	None
443:									
Menbo, dry	D								
		Jan-Dec	---	---	---	---	None	---	None
444:									
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
445:									
Mesman	C								
		Jan-Dec	---	---	---	---	None	---	None
446:									
Mesman, slightly alkaline	C								
		Jan-Dec	---	---	---	---	None	---	None
447:									
Mesman	C								
		Jan-Dec	---	---	---	---	None	---	None
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None
Kewake	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
448:									
Milcan	B								
		Jan-Dec	---	---	---	---	None	---	None
449:									
Milcan	B								
		Jan-Dec	---	---	---	---	None	---	None
Jacksplace	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
450:									
Millenium	C								
		Jan-Dec	---	---	---	---	None	---	None
451:									
Millenium, basin floor	C								
		Jan-Dec	---	---	---	---	None	---	None
452:									
Millenium	C								
		Jan-Dec	---	---	---	---	None	---	None
Stauffer	B								
		Jan-Dec	---	---	---	---	None	---	None
Raztack	C/D								
		February	0-6 40-60	6-14 >72	0-4	Brief	Frequent	---	None
		March	0-6 40-60	6-14 >72	0-4	Brief	Frequent	---	None
		April	0-6 40-60	6-14 >72	0-4	Brief	Frequent	---	None
455:									
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
456:									
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
457:									
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
458:									
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
459:									
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
460:									
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
461:									
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
Connleyhills	D								
		Jan-Dec	---	---	---	---	None	---	None
462:									
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
Goodtack	D								
		Jan-Dec	---	---	---	---	None	---	None
463:									
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
Goodtack	D								
		Jan-Dec	---	---	---	---	None	---	None
464:									
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
Hayespring	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
465:									
Moonbeam, moist	D	Jan-Dec	---	---	---	---	None	---	None
Hayespring, moist	C	Jan-Dec	---	---	---	---	None	---	None
466:									
Moonbeam	D	Jan-Dec	---	---	---	---	None	---	None
Meld	C	Jan-Dec	---	---	---	---	None	---	None
467:									
Moonbeam	D	Jan-Dec	---	---	---	---	None	---	None
Senra	D	Jan-Dec	---	---	---	---	None	---	None
468:									
Moonbeam, gravelly ashy fine sandy loam surface	D	Jan-Dec	---	---	---	---	None	---	None
Senra	D	Jan-Dec	---	---	---	---	None	---	None
469:									
Moonbeam	D	Jan-Dec	---	---	---	---	None	---	None
Senra	D	Jan-Dec	---	---	---	---	None	---	None
Hayespring	C	Jan-Dec	---	---	---	---	None	---	None
470:									
Morehouse	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
471:									
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
472:									
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
473:									
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
474:									
Morehouse, ashy fine sand surface	A								
		Jan-Dec	---	---	---	---	None	---	None
Morehouse, ashy sand surface	A								
		Jan-Dec	---	---	---	---	None	---	None
475:									
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
Playas	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None
476:									
Morfitt	C/D								
		April	0	2-2	0-3	Brief	Occasional	---	None
		May	0	2-2	0-3	Brief	Occasional	---	None
		June	0	2-2	0-3	Brief	Occasional	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
477:									
Murlose	D								
		Jan-Dec	---	---	---	---	None	---	None
478:									
Murlose	D								
		Jan-Dec	---	---	---	---	None	---	None
479:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
480:									
Ninemile, low precipitation	D								
		Jan-Dec	---	---	---	---	None	---	None
481:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Arcia	D								
		Jan-Dec	---	---	---	---	None	---	None
482:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Carvix	B								
		Jan-Dec	---	---	---	---	None	---	None
483:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Edemaps	C								
		Jan-Dec	---	---	---	---	None	---	None
484:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Reluctan	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
485:									
Ninemile	D	Jan-Dec	---	---	---	---	None	---	None
Reluctan	C	Jan-Dec	---	---	---	---	None	---	None
Rubble land	---	Jan-Dec	---	---	---	---	None	---	None
486:									
Ninemile, north	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
Felcher, south	C	Jan-Dec	---	---	---	---	None	---	None
487:									
Ninemile	D	Jan-Dec	---	---	---	---	None	---	None
Westbutte	C	Jan-Dec	---	---	---	---	None	---	None
488:									
Ninemile	D	Jan-Dec	---	---	---	---	None	---	None
Westbutte	C	Jan-Dec	---	---	---	---	None	---	None
Ninemile, extremely stony surface	D	Jan-Dec	---	---	---	---	None	---	None
489:									
Noidee	D	Jan-Dec	---	---	---	---	None	---	None
490:									
Norcross, extremely cobbly ashy loam surface	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
490:									
Norcross, cobbly ashy fine sandy loam surface	D								
		Jan-Dec	---	---	---	---	None	---	None
491:									
Norcross	D								
		Jan-Dec	---	---	---	---	None	---	None
492:									
Norcross	D								
		Jan-Dec	---	---	---	---	None	---	None
493:									
Oatmanflat	A								
		January	---	---	---	---	None	---	Rare
		February	---	---	---	---	None	---	Rare
494:									
Oatmanflat	A								
		January	---	---	---	---	None	---	Rare
		February	---	---	---	---	None	---	Rare
Borobey	C								
		Jan-Dec	---	---	---	---	None	---	None
495:									
Old Camp	D								
		Jan-Dec	---	---	---	---	None	---	None
496:									
Old Camp, south	D								
		Jan-Dec	---	---	---	---	None	---	None
497:									
Old Camp	D								
		Jan-Dec	---	---	---	---	None	---	None
Felcher, north	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
498:									
Osoll	D								
		Jan-Dec	---	---	---	---	None	---	None
Panlee	A								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
499:									
Overallflat	C/D								
		January	0	6-9	0-6	Brief	Occasional	---	None
		February	0	6-9	0-6	Brief	Occasional	---	None
		March	0	6-9	0-6	Brief	Occasional	---	None
500:									
Overallflat, pluvial lake	C/D								
		January	0	6-9	0-6	Brief	Occasional	---	None
		February	0	6-9	0-6	Brief	Occasional	---	None
		March	0	6-9	0-6	Brief	Occasional	---	None
501:									
Overallflat	C/D								
		January	0	6-9	0-6	Brief	Occasional	---	None
		February	0	6-9	0-6	Brief	Occasional	---	None
		March	0	6-9	0-6	Brief	Occasional	---	None
Morehouse	A								
		Jan-Dec	---	---	---	---	None	---	None
502:									
Overallflat	C/D								
		January	0	6-9	0-6	Brief	Occasional	---	None
		February	0	6-9	0-6	Brief	Occasional	---	None
		March	0	6-9	0-6	Brief	Occasional	---	None
Silverash	C/D								
		January	0-8	7-9	0-5	Long	Frequent	---	None
		February	0-8	7-9	0-5	Long	Frequent	---	None
		March	0-8	7-9	0-5	Long	Frequent	---	None
		April	0-8	7-9	0-5	Long	Frequent	---	None
		May	0-8	7-9	0-5	Long	Frequent	---	None
		June	0-8	7-9	---	---	None	---	None
		July	0-8	7-9	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
503:									
Overallflat, hummocky	C/D								
		January	0	6-9	0-6	Brief	Occasional	---	None
		February	0	6-9	0-6	Brief	Occasional	---	None
		March	0	6-9	0-6	Brief	Occasional	---	None
Silverash	C/D								
		January	0-8	7-9	0-5	Long	Frequent	---	None
		February	0-8	7-9	0-5	Long	Frequent	---	None
		March	0-8	7-9	0-5	Long	Frequent	---	None
		April	0-8	7-9	0-5	Long	Frequent	---	None
		May	0-8	7-9	0-5	Long	Frequent	---	None
		June	0-8	7-9	---	---	None	---	None
		July	0-8	7-9	---	---	None	---	None
504:									
Ozamis, saline	C/D								
		March	12-48	>72	---	---	None	---	Rare
		April	12-48	>72	---	---	None	---	Rare
		May	12-48	>72	---	---	None	---	Rare
		June	12-48	>72	---	---	None	---	Rare
505:									
Ozamis	C/D								
		March	0	>72	0-6	Long	Frequent	---	Rare
		April	0	>72	0-6	Long	Frequent	---	Rare
		May	0	>72	0-6	Long	Frequent	---	Rare
		June	0	>72	0-6	Long	Frequent	---	Rare
		July	0	>72	0-6	Long	Frequent	---	None
		August	0	>72	0-6	Long	Frequent	---	None
		September	0	>72	0-6	Long	Frequent	---	None
Reese	C/D								
		January	44-60	>72	---	---	None	---	None
		February	36-44	>72	---	---	None	---	None
		March	12-36	>72	---	---	None	---	Rare
		April	12-36	>72	---	---	None	---	Rare
		May	12-36	>72	---	---	None	---	Rare
		June	12-36	>72	---	---	None	---	Rare
		July	12-36	>72	---	---	None	---	None
		August	36-44	>72	---	---	None	---	None
		November	44-60	>72	---	---	None	---	None
		December	44-60	>72	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
506:									
Pait	B								
		Jan-Dec	---	---	---	---	None	---	None
507:									
Paulina	C/D								
		January	0-18	>72	---	---	None	---	None
		February	0-3	>72	0-6	Very long	Frequent	---	None
		March	0-3	>72	0-6	Very long	Frequent	---	None
		April	0-3	>72	---	---	None	---	None
		May	0-3	>72	---	---	None	---	None
		June	0-18	>72	---	---	None	---	None
		July	25-40	>72	---	---	None	---	None
		August	25-40	>72	---	---	None	---	None
		September	25-40	>72	---	---	None	---	None
		October	25-40	>72	---	---	None	---	None
		November	25-40	>72	---	---	None	---	None
		December	25-40	>72	---	---	None	---	None
508:									
Paulina, very gravelly substratum	C/D								
		January	0-18	>72	---	---	None	---	None
		February	0-3	>72	0-6	Very long	Frequent	---	None
		March	0-3	>72	0-6	Very long	Frequent	---	None
		April	0-3	>72	---	---	None	---	None
		May	0-3	>72	---	---	None	---	None
		June	0-18	>72	---	---	None	---	None
		July	25-40	>72	---	---	None	---	None
		August	25-40	>72	---	---	None	---	None
		September	25-40	>72	---	---	None	---	None
		October	25-40	>72	---	---	None	---	None
		November	25-40	>72	---	---	None	---	None
		December	25-40	>72	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	In	In				
509:									
Paulina	C/D								
		January	0-18	>72	---	---	None	---	None
		February	0-3	>72	0-6	Very long	Frequent	---	None
		March	0-3	>72	0-6	Very long	Frequent	---	None
		April	0-3	>72	---	---	None	---	None
		May	0-3	>72	---	---	None	---	None
		June	0-18	>72	---	---	None	---	None
		July	25-40	>72	---	---	None	---	None
		August	25-40	>72	---	---	None	---	None
		September	25-40	>72	---	---	None	---	None
		October	25-40	>72	---	---	None	---	None
		November	25-40	>72	---	---	None	---	None
		December	25-40	>72	---	---	None	---	None
Chinarise	C								
		January	40-60	>72	---	---	None	---	None
		February	36-40	>72	---	---	None	---	None
		March	24-40	>72	---	---	None	---	None
		April	24-40	>72	---	---	None	---	None
		May	24-40	>72	---	---	None	---	None
		June	36-40	>72	---	---	None	---	None
		July	36-40	>72	---	---	None	---	None
		August	40-60	>72	---	---	None	---	None
		December	40-60	>72	---	---	None	---	None
511:									
Pernty	D								
		Jan-Dec	---	---	---	---	None	---	None
512:									
Pernty	D								
		Jan-Dec	---	---	---	---	None	---	None
Chesebro	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
513:									
Pernty	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
513:									
Cleavage	D								
		Jan-Dec	---	---	---	---	None	---	None
514:									
Pernty, south	D								
		Jan-Dec	---	---	---	---	None	---	None
Glencabin	A								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
516:									
Pernty, south	D								
		Jan-Dec	---	---	---	---	None	---	None
Westbutte, north	C								
		Jan-Dec	---	---	---	---	None	---	None
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
517:									
Picturerock	B/D								
		January	0-8	3-11	---	---	Rare	---	None
		February	0-8	3-11	---	---	Rare	---	None
		March	0-8	3-11	---	---	Rare	---	None
		April	0-8	3-11	---	---	Rare	---	None
		May	0-8	3-11	---	---	Rare	---	None
		June	0-8	3-11	---	---	Rare	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
518:									
Pitcheranch	B/D								
		January	0-20	>72	---	---	None	---	None
		February	0-20	>72	0-4	Long	Frequent	---	Rare
		March	0-20	>72	0-4	Long	Frequent	---	Rare
		April	0-20	>72	0-4	Long	Frequent	---	Rare
		May	0-20	>72	0-4	Long	Frequent	---	Rare
		June	0-20	>72	0-4	Long	Frequent	---	Rare
		July	0	2-2	0-4	Long	Frequent	---	Rare
			0-20	>72					
		August	20-60	>72	---	---	None	---	None
		September	20-60	>72	---	---	None	---	None
		October	0-20	>72	---	---	None	---	None
		November	0-20	>72	---	---	None	---	None
		December	0-20	>72	---	---	None	---	None
519:									
Pitcheranch	B/D								
		January	0-20	>72	0-6	Long	Frequent	---	None
		February	0-20	>72	0-6	Long	Frequent	---	None
		March	0-20	>72	0-6	Long	Frequent	---	None
		April	0-20	>72	0-6	Long	Frequent	---	None
		May	0-20	>72	0-6	Long	Frequent	---	None
		June	0-20	>72	0-6	Long	Frequent	---	None
		July	2-30	>72	---	---	None	---	None
		August	7-30	>72	---	---	None	---	None
		September	7-30	>72	---	---	None	---	None
		October	7-20	>72	---	---	None	---	None
		November	7-20	>72	---	---	None	---	None
		December	7-20	>72	---	---	None	---	None
Chinarise	C								
		January	40-60	>72	---	---	None	---	None
		February	36-40	>72	---	---	None	---	None
		March	24-40	>72	---	---	None	---	None
		April	24-40	>72	---	---	None	---	None
		May	24-40	>72	---	---	None	---	None
		June	36-40	>72	---	---	None	---	None
		July	36-40	>72	---	---	None	---	None
		August	40-60	>72	---	---	None	---	None
		December	40-60	>72	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
520:									
Playas	---								
		February	0	>72	0-12	Long	Frequent	---	None
		March	0	>72	0-12	Long	Frequent	---	None
		April	0	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	0	>72	0-12	Long	Frequent	---	None
521:									
Playas, saline	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None
522:									
Playas	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	In	In				
522:									
Helphenstein	C/D								
		January	48-60	>72	---	---	None	---	None
		February	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		March	0	2-2	0-6	Long	Occasional	---	None
			24-34	>72					
		April	0	2-2	0-6	Long	Occasional	---	None
			24-48	>72					
		May	0	2-2	0-6	Long	Occasional	---	None
			48-60	>72					
		November	48-60	>72	---	---	None	---	None
		December	48-60	>72	---	---	None	---	None
523:									
Poorjug	D								
		Jan-Dec	---	---	---	---	None	---	None
Poorjug, overblown	D								
		Jan-Dec	---	---	---	---	None	---	None
524:									
Poorjug	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
525:									
Porterfield	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
526:									
Puzzlebark	D								
		Jan-Dec	---	---	---	---	None	---	None
Morehouse, moderately steep	A								
		Jan-Dec	---	---	---	---	None	---	None
Morehouse, gently sloping	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
527:									
Puzzlebark	D								
		Jan-Dec	---	---	---	---	None	---	None
Sandrock	D								
		Jan-Dec	---	---	---	---	None	---	None
528:									
Rabbithills, overblown	D								
		Jan-Dec	---	---	---	---	None	---	None
Rabbithills	D								
		Jan-Dec	---	---	---	---	None	---	None
529:									
Rabbithills	D								
		Jan-Dec	---	---	---	---	None	---	None
Rabbithills, overblown	D								
		Jan-Dec	---	---	---	---	None	---	None
530:									
Rabbithills	D								
		Jan-Dec	---	---	---	---	None	---	None
531:									
Rabbithills, sodic	D								
		Jan-Dec	---	---	---	---	None	---	None
532:									
Rabbithills	D								
		Jan-Dec	---	---	---	---	None	---	None
533:									
Rabbithills	D								
		Jan-Dec	---	---	---	---	None	---	None
534:									
Rabbithills	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
534:									
Helphenstein, frequently ponded	B/D								
		January	39-50	>72	---	---	None	---	None
		February	18-39	>72	---	---	None	---	None
		March	0	2-2	0-6	Brief	Frequent	---	None
			9-18	>72					
		April	0	2-2	0-6	Brief	Frequent	---	None
			18-39	>72					
		May	0	2-2	0-6	Brief	Frequent	---	None
			39-50	>72					
		June	0	2-2	0-6	Brief	Frequent	---	None
			39-60	>72					
		July	39-60	>72	---	---	None	---	None
		November	39-60	>72	---	---	None	---	None
		December	39-60	>72	---	---	None	---	None
535:									
Ratto	D								
		Jan-Dec	---	---	---	---	None	---	None
536:									
Raz, overblown	D								
		Jan-Dec	---	---	---	---	None	---	None
537:									
Raz	D								
		Jan-Dec	---	---	---	---	None	---	None
Brace	C								
		Jan-Dec	---	---	---	---	None	---	None
538:									
Raz, high precipitation	D								
		Jan-Dec	---	---	---	---	None	---	None
Brace, high precipitation	C								
		Jan-Dec	---	---	---	---	None	---	None
539:									
Raz, low precipitation	D								
		Jan-Dec	---	---	---	---	None	---	None
Brace, low precipitation	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
540:									
Raz, overblown	D								
		Jan-Dec	---	---	---	---	None	---	None
Brace, overblown	C								
		Jan-Dec	---	---	---	---	None	---	None
541:									
Raz	D								
		Jan-Dec	---	---	---	---	None	---	None
Poorjug	D								
		Jan-Dec	---	---	---	---	None	---	None
542:									
Raz	D								
		Jan-Dec	---	---	---	---	None	---	None
Reallis	C								
		Jan-Dec	---	---	---	---	None	---	None
543:									
Raztack	C/D								
		February	0-6	6-14	0-4	Brief	Frequent	---	None
			40-60	>72					
		March	0-6	6-14	0-4	Brief	Frequent	---	None
			40-60	>72					
		April	0-6	6-14	0-4	Brief	Frequent	---	None
			40-60	>72					
Silverash	C/D								
		January	0-8	7-9	0-5	Long	Frequent	---	None
		February	0-8	7-9	0-5	Long	Frequent	---	None
		March	0-8	7-9	0-5	Long	Frequent	---	None
		April	0-8	7-9	0-5	Long	Frequent	---	None
		May	0-8	7-9	0-5	Long	Frequent	---	None
		June	0-8	7-9	---	---	None	---	None
		July	0-8	7-9	---	---	None	---	None
Embal	A								
		Jan-Dec	---	---	---	---	None	---	None
544:									
Reallis	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
545:									
Reallis	C								
		Jan-Dec	---	---	---	---	None	---	None
546:									
Reallis, sandy loam surface	C								
		Jan-Dec	---	---	---	---	None	---	None
Reallis, fine sandy loam surface	C								
		Jan-Dec	---	---	---	---	None	---	None
547:									
Reallis	C								
		Jan-Dec	---	---	---	---	None	---	None
Yankeewell	D								
		Jan-Dec	---	---	---	---	None	---	None
548:									
Redcanyon, north	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
549:									
Redcanyon, south	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
550:									
Redcliff, south	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
551:									
Reese	C/D								
		January	44-60	>72	---	---	None	---	None
		February	36-44	>72	---	---	None	---	None
		March	12-36	>72	---	---	None	---	Rare
		April	12-36	>72	---	---	None	---	Rare
		May	12-36	>72	---	---	None	---	Rare
		June	12-36	>72	---	---	None	---	Rare
		July	12-36	>72	---	---	None	---	None
		August	36-44	>72	---	---	None	---	None
		November	44-60	>72	---	---	None	---	None
		December	44-60	>72	---	---	None	---	None
Ozamis	C/D								
		March	12-48	>72	---	---	None	---	Rare
		April	12-48	>72	---	---	None	---	Rare
		May	12-48	>72	---	---	None	---	Rare
		June	12-48	>72	---	---	None	---	Rare
552:									
Reluctan	C								
		Jan-Dec	---	---	---	---	None	---	None
553:									
Reluctan	C								
		Jan-Dec	---	---	---	---	None	---	None
Arness	D								
		Jan-Dec	---	---	---	---	None	---	None
554:									
Riddleranch, north	B								
		Jan-Dec	---	---	---	---	None	---	None
555:									
Riddleranch, north	B								
		Jan-Dec	---	---	---	---	None	---	None
556:									
Riddleranch, south	B								
		Jan-Dec	---	---	---	---	None	---	None
Lambring, north	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
556:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
557:									
Rinconflat	A								
		Jan-Dec	---	---	---	---	None	---	None
558:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	---								
		Jan-Dec	---	---	---	---	None	---	None
559:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Blackhills	D								
		Jan-Dec	---	---	---	---	None	---	None
560:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Blackhills	D								
		Jan-Dec	---	---	---	---	None	---	None
Glencabin, north	B								
		Jan-Dec	---	---	---	---	None	---	None
561:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Felcher, south	C								
		Jan-Dec	---	---	---	---	None	---	None
562:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Shukash	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			In	In	In				
563:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Xeric Haplocambids	D								
		Jan-Dec	---	---	---	---	None	---	None
564:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Xeric Haplocambids, south	D								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	---								
		Jan-Dec	---	---	---	---	None	---	None
565:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
Xerolls, south	D								
		Jan-Dec	---	---	---	---	None	---	None
566:									
Royst	D								
		Jan-Dec	---	---	---	---	None	---	None
567:									
Royst	D								
		Jan-Dec	---	---	---	---	None	---	None
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
568:									
Royst	D								
		Jan-Dec	---	---	---	---	None	---	None
Nuss	D								
		Jan-Dec	---	---	---	---	None	---	None
569:									
Sagehen	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
570:									
Sagehen	D								
		Jan-Dec	---	---	---	---	None	---	None
Raz	D								
		Jan-Dec	---	---	---	---	None	---	None
571:									
Salhouse	A								
		Jan-Dec	---	---	---	---	None	---	None
572:									
Salhouse, strongly alkaline	A								
		Jan-Dec	---	---	---	---	None	---	None
573:									
Salhouse	A								
		Jan-Dec	---	---	---	---	None	---	None
Tonor	B								
		Jan-Dec	---	---	---	---	None	---	None
574:									
Seharney	D								
		Jan-Dec	---	---	---	---	None	---	None
575:									
Seharney	D								
		Jan-Dec	---	---	---	---	None	---	None
Rabbithills	D								
		Jan-Dec	---	---	---	---	None	---	None
Enko	C								
		Jan-Dec	---	---	---	---	None	---	None
576:									
Senra	D								
		Jan-Dec	---	---	---	---	None	---	None
577:									
Senra	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
578:									
Senra	D	Jan-Dec	---	---	---	---	None	---	None
Borobey	C	Jan-Dec	---	---	---	---	None	---	None
579:									
Senra	D	Jan-Dec	---	---	---	---	None	---	None
Dunres	D	Jan-Dec	---	---	---	---	None	---	None
580:									
Senra	D	Jan-Dec	---	---	---	---	None	---	None
Goodtack	D	Jan-Dec	---	---	---	---	None	---	None
581:									
Senra	D	Jan-Dec	---	---	---	---	None	---	None
Goodtack	D	Jan-Dec	---	---	---	---	None	---	None
582:									
Senra	D	Jan-Dec	---	---	---	---	None	---	None
Goodtack	D	Jan-Dec	---	---	---	---	None	---	None
Suckerflat	D	Jan-Dec	---	---	---	---	None	---	None
583:									
Senra	D	Jan-Dec	---	---	---	---	None	---	None
Hayespring	C	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
584:									
Senra, droughty	D	Jan-Dec	---	---	---	---	None	---	None
Hayespring, droughty	C	Jan-Dec	---	---	---	---	None	---	None
585:									
Senra	D	Jan-Dec	---	---	---	---	None	---	None
Moonbeam	D	Jan-Dec	---	---	---	---	None	---	None
586:									
Shanahan	A	Jan-Dec	---	---	---	---	None	---	None
587:									
Shanahan, low landscape position	A	Jan-Dec	---	---	---	---	None	---	None
588:									
Shanahan, north	A	Jan-Dec	---	---	---	---	None	---	None
Shukash	A	Jan-Dec	---	---	---	---	None	---	None
589:									
Shukash	A	Jan-Dec	---	---	---	---	None	---	None
590:									
Shukash, cool	A	Jan-Dec	---	---	---	---	None	---	None
591:									
Shukash, north	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
592:									
Shukash, south	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
593:									
Shukash	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
594:									
Shukash	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
595:									
Shukash	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
596:									
Shukash	A	Jan-Dec	---	---	---	---	None	---	None
Shanahan	A	Jan-Dec	---	---	---	---	None	---	None
597:									
Shukash	A	Jan-Dec	---	---	---	---	None	---	None
Wanoga	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
598:									
Sisters	C								
		Jan-Dec	---	---	---	---	None	---	None
Wanoga	A								
		Jan-Dec	---	---	---	---	None	---	None
599:									
Sliptrack	C								
		Jan-Dec	---	---	---	---	None	---	None
Moonbeam	D								
		Jan-Dec	---	---	---	---	None	---	None
600:									
Sliptrack	C								
		Jan-Dec	---	---	---	---	None	---	None
Oatmanflat	A								
		January	---	---	---	---	None	---	Rare
		February	---	---	---	---	None	---	Rare
601:									
Snakepit	A								
		Jan-Dec	---	---	---	---	None	---	None
602:									
Southcat	A								
		Jan-Dec	---	---	---	---	None	---	None
603:									
Southcat	A								
		Jan-Dec	---	---	---	---	None	---	None
Kewake	A								
		Jan-Dec	---	---	---	---	None	---	None
604:									
Southcat	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
604:									
Playas	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None
605:									
Spiderhole, very cobbly loamy sand surface	D								
		Jan-Dec	---	---	---	---	None	---	None
Spiderhole, very gravelly loamy sand surface	D								
		Jan-Dec	---	---	---	---	None	---	None
606:									
Stampede	D								
		Jan-Dec	---	---	---	---	None	---	None
607:									
Steiger	A								
		Jan-Dec	---	---	---	---	None	---	None
608:									
Steiger, cool	A								
		Jan-Dec	---	---	---	---	None	---	None
609:									
Steiger	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
610:									
Steiger, north	A								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
611:									
Steiger, south	A								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
612:									
Suckerflat	D								
		Jan-Dec	---	---	---	---	None	---	None
613:									
Suckerflat	D								
		Jan-Dec	---	---	---	---	None	---	None
614:									
Suckerflat	D								
		Jan-Dec	---	---	---	---	None	---	None
615:									
Suckerflat, north	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
616:									
Suckerflat, south	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
617:									
Suckerflat	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
617:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
618:									
Suckerflat	D								
		Jan-Dec	---	---	---	---	None	---	None
Weglike	C								
		Jan-Dec	---	---	---	---	None	---	None
619:									
Silverash	C/D								
		January	0-8	7-9	---	---	None	---	None
		February	0-8	7-9	---	---	None	---	None
		March	0-8	7-9	0-12	Long	Frequent	---	None
		April	0-8	7-9	0-12	Long	Frequent	---	None
		May	0-8	7-9	0-12	Long	Frequent	---	None
		June	0-8	7-9	---	---	None	---	None
		July	0-8	7-9	---	---	None	---	None
620:									
Swalesilver	C/D								
		February	0-6	4-12	---	---	None	---	None
		March	0-6	4-12	0-12	Long	Frequent	---	None
		April	0-6	4-12	0-12	Long	Frequent	---	None
		May	0-6	4-12	0-12	Long	Frequent	---	None
621:									
Swalesilver	C/D								
		February	0-6	4-12	---	---	None	---	None
		March	0-6	4-12	0-12	Long	Frequent	---	None
		April	0-6	4-12	0-12	Long	Frequent	---	None
		May	0-6	4-12	0-12	Long	Frequent	---	None
622:									
Teguro	D								
		Jan-Dec	---	---	---	---	None	---	None
623:									
Teguro	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
624:									
Thompsoncabin, extremely bouldery	D	Jan-Dec	---	---	---	---	None	---	None
Thompsoncabin	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
625:									
Thompsoncabin	D	Jan-Dec	---	---	---	---	None	---	None
Wildhill	C	Jan-Dec	---	---	---	---	None	---	None
626:									
Thornlake	B	Jan-Dec	---	---	---	---	None	---	None
627:									
Thornlake, nonsodic surface	B	Jan-Dec	---	---	---	---	None	---	None
628:									
Thornlake, strongly alkaline	B	Jan-Dec	---	---	---	---	None	---	None
Thornlake, moderately alkaline	B	Jan-Dec	---	---	---	---	None	---	None
629:									
Thornlake	A	Jan-Dec	---	---	---	---	None	---	None
Catlow	C	Jan-Dec	---	---	---	---	None	---	None
Kewake	A	Jan-Dec	---	---	---	---	None	---	None
630:									
Thornlake	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
630:									
Kewake	A	Jan-Dec	---	---	---	---	None	---	None
631:									
Thornlake	B	Jan-Dec	---	---	---	---	None	---	None
Morehouse	A	Jan-Dec	---	---	---	---	None	---	None
632:									
Thornlake	B	Jan-Dec	---	---	---	---	None	---	None
Salhouse	A	Jan-Dec	---	---	---	---	None	---	None
633:									
Thornlake, dunes	B	Jan-Dec	---	---	---	---	None	---	None
Salhouse, dunes	A	Jan-Dec	---	---	---	---	None	---	None
634:									
Thornlake	B	Jan-Dec	---	---	---	---	None	---	None
Salhouse	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
634:									
Fossilake	B/D								
		January	30-48	>72	---	---	None	---	None
		February	0	2-2	0-6	Long	Frequent	---	None
			30-48	>72					
		March	0	2-2	0-6	Long	Frequent	---	None
			30-48	>72					
		April	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		May	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		June	0	2-2	0-6	Long	Frequent	---	None
			15-30	>72					
		July	30-48	>72	---	---	None	---	None
		August	30-48	>72	---	---	None	---	None
		September	43-48	>72	---	---	None	---	None
		October	43-48	>72	---	---	None	---	None
		November	43-48	>72	---	---	None	---	None
		December	43-48	>72	---	---	None	---	None
635:									
Teguro	D								
		Jan-Dec	---	---	---	---	None	---	None
Carryback	D								
		Jan-Dec	---	---	---	---	None	---	None
636:									
Toll	A								
		Jan-Dec	---	---	---	---	None	---	None
637:									
Toll	A								
		Jan-Dec	---	---	---	---	None	---	None
Nevador	C								
		Jan-Dec	---	---	---	---	None	---	None
638:									
Tonor	B								
		Jan-Dec	---	---	---	---	None	---	None
639:									
Tuffcabin	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
640:									
Turpin	A								
		Jan-Dec	---	---	---	---	None	---	None
641:									
Turpin	A								
		Jan-Dec	---	---	---	---	None	---	None
642:									
Turpin	A								
		Jan-Dec	---	---	---	---	None	---	None
Boravall	C/D								
		January	6-17	>72	---	---	None	---	None
		February	6-17	>72	---	---	None	---	None
		March	0-6	>72	0-6	Long	Frequent	---	None
		April	0-6	>72	0-6	Long	Frequent	---	None
		May	0	2-2	0-6	Long	Frequent	---	None
			6-17	>72					
		June	17-36	>72	---	---	None	---	None
		July	36-60	>72	---	---	None	---	None
		August	36-60	>72	---	---	None	---	None
		September	36-60	>72	---	---	None	---	None
		October	36-60	>72	---	---	None	---	None
		November	36-60	>72	---	---	None	---	None
		December	17-36	>72	---	---	None	---	None
Playas	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
643:									
Turpin	A								
		Jan-Dec	---	---	---	---	None	---	None
Kewake	A								
		Jan-Dec	---	---	---	---	None	---	None
Playas	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None
644:									
Turpin	A								
		Jan-Dec	---	---	---	---	None	---	None
Playas	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
645:									
Turpin, saline	A								
		Jan-Dec	---	---	---	---	None	---	None
Playas, saline	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None
646:									
Turpin, sodic	A								
		Jan-Dec	---	---	---	---	None	---	None
Playas, sodic	---								
		January	0-12	>72	0-12	Long	Frequent	---	None
		February	0-12	>72	0-12	Long	Frequent	---	None
		March	0-12	>72	0-12	Long	Frequent	---	None
		April	0-12	>72	0-12	Long	Frequent	---	None
		May	0	>72	0-12	Long	Frequent	---	None
		June	12-72	>72	0-12	Long	Frequent	---	None
		July	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		August	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		September	0	2-2	0-12	Long	Frequent	---	None
			12-72	>72					
		October	12-72	>72	---	---	None	---	None
		November	12-72	>72	---	---	None	---	None
		December	0-12	>72	0-12	Long	Frequent	---	None
647:									
Turpin	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
647:									
Rabbitcreek	C								
		Jan-Dec	---	---	---	---	None	---	None
648:									
Turpin	B								
		Jan-Dec	---	---	---	---	None	---	None
Reese	C/D								
		January	44-60	>72	---	---	None	---	None
		February	36-44	>72	---	---	None	---	None
		March	12-36	>72	---	---	None	---	Rare
		April	12-36	>72	---	---	None	---	Rare
		May	12-36	>72	---	---	None	---	Rare
		June	12-36	>72	---	---	None	---	Rare
		July	12-36	>72	---	---	None	---	None
		August	36-44	>72	---	---	None	---	None
		November	44-60	>72	---	---	None	---	None
		December	44-60	>72	---	---	None	---	None
649:									
Turpin	A								
		Jan-Dec	---	---	---	---	None	---	None
Turpin, overblown	A								
		Jan-Dec	---	---	---	---	None	---	None
650:									
Vitale	D								
		Jan-Dec	---	---	---	---	None	---	None
651:									
Wagontire	D								
		Jan-Dec	---	---	---	---	None	---	None
652:									
Wanoga, south	A								
		Jan-Dec	---	---	---	---	None	---	None
653:									
Wanoga, south	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	In	In				
654:									
Wanoga	A	Jan-Dec	---	---	---	---	None	---	None
Henkle	B	Jan-Dec	---	---	---	---	None	---	None
655:									
Wanoga	A	Jan-Dec	---	---	---	---	None	---	None
Henkle, cool	B	Jan-Dec	---	---	---	---	None	---	None
656:									
Wanoga, dry	A	Jan-Dec	---	---	---	---	None	---	None
Henkle, dry	B	Jan-Dec	---	---	---	---	None	---	None
657:									
Wanoga, moist	A	Jan-Dec	---	---	---	---	None	---	None
Henkle, moist	B	Jan-Dec	---	---	---	---	None	---	None
658:									
Wanoga	A	Jan-Dec	---	---	---	---	None	---	None
Henkle	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
659:									
Wanoga, north	A	Jan-Dec	---	---	---	---	None	---	None
Henkle, north	B	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
659:									
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
660:									
Wanoga	A								
		Jan-Dec	---	---	---	---	None	---	None
Laidlaw	A								
		Jan-Dec	---	---	---	---	None	---	None
661:									
Wanoga	A								
		Jan-Dec	---	---	---	---	None	---	None
Sisters	C								
		Jan-Dec	---	---	---	---	None	---	None
663:									
Wegert	A								
		Jan-Dec	---	---	---	---	None	---	None
664:									
Wegert, cool	A								
		Jan-Dec	---	---	---	---	None	---	None
665:									
Wegert	A								
		Jan-Dec	---	---	---	---	None	---	None
666:									
Wegert	A								
		Jan-Dec	---	---	---	---	None	---	None
Kunceider	D								
		Jan-Dec	---	---	---	---	None	---	None
667:									
Wegert, cool	A								
		Jan-Dec	---	---	---	---	None	---	None
Kunceider, cool	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
668:									
Wegert, high precipitation	A	Jan-Dec	---	---	---	---	None	---	None
Kunceider, high precipitation	D	Jan-Dec	---	---	---	---	None	---	None
669:									
Wegert	A	Jan-Dec	---	---	---	---	None	---	None
Morehouse	A	Jan-Dec	---	---	---	---	None	---	None
670:									
Weglike	C	Jan-Dec	---	---	---	---	None	---	None
Jacksplace	C	Jan-Dec	---	---	---	---	None	---	None
671:									
Weglike	C	Jan-Dec	---	---	---	---	None	---	None
Suckerflat	D	Jan-Dec	---	---	---	---	None	---	None
672:									
Westbutte, north	C	Jan-Dec	---	---	---	---	None	---	None
Lambring, north	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
673:									
Westbutte, north	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			In	*In*	*In*				
673:									
Pernty, south	D								
		Jan-Dec	---	---	---	---	None	---	None
674:									
Widowspring	C								
		January	36-60	>72	---	---	None	---	None
		February	36-60	>72	---	---	None	---	None
		March	36-60	>72	---	---	Rare	---	None
		April	36-60	>72	---	---	Rare	---	None
		May	36-60	>72	---	---	Rare	---	None
		June	36-60	>72	---	---	None	---	None
		July	36-60	>72	---	---	None	---	None
		November	36-60	>72	---	---	None	---	None
		December	36-60	>72	---	---	None	---	None
675:									
Wildcatbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
Chesebro	B								
		Jan-Dec	---	---	---	---	None	---	None
Glassbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
676:									
Wildcatbutte, south	B								
		Jan-Dec	---	---	---	---	None	---	None
Glencabin, north	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
677:									
Wildcatbutte, south	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			In	*In*	*In*				
678:									
Wildcatbutte	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
679:									
Wildcatbutte	B	Jan-Dec	---	---	---	---	None	---	None
Suckerflat, south	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
680:									
Winterim	C	Jan-Dec	---	---	---	---	None	---	None
681:									
Wiskan	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
682:									
Xerolls, north	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
683:									
Xerolls, north	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
684:									
Yankeewell	D	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
685:									
Yankeewell	D	Jan-Dec	---	---	---	---	None	---	None
Noidee	D	Jan-Dec	---	---	---	---	None	---	None
686:									
Yapoah, north	A	Jan-Dec	---	---	---	---	None	---	None
687:									
Yapoah, south	A	Jan-Dec	---	---	---	---	None	---	None
688:									
Youtlkue	C	February	10-30	20-35	---	---	None	---	None
		March	10-30	20-35	---	---	None	---	None
		April	10-30	20-35	---	---	None	---	None
689:									
Zorravista	A	Jan-Dec	---	---	---	---	None	---	None
690:									
Zorravista	A	Jan-Dec	---	---	---	---	None	---	None
Hinton	B	---	---	---	---	---	---	---	---
691:									
Lithic Haploxerolls	D	Jan-Dec	---	---	---	---	None	---	None
Lava flows	---	Jan-Dec	---	---	---	---	None	---	None
692:									
Steiger	A	Jan-Dec	---	---	---	---	None	---	None

Table 10.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			In	*In*	*In*				
693:									
Steiger, high elevation	A								
		Jan-Dec	---	---	---	---	None	---	None
694:									
Steiger, low landscape position	A								
		Jan-Dec	---	---	---	---	None	---	None
695:									
Ninemile, hummocky	D								
		Jan-Dec	---	---	---	---	None	---	None
696:									
Shanahan	A								
		Jan-Dec	---	---	---	---	None	---	None
888:									
Denied access	---								
		---	---	---	---	---	---	---	---
999:									
Water	---								
		---	---	---	---	---	---	---	---

Table 11.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
200:									
Abert	---	---	---	---	0	---	Low	Moderate	High
201:									
Actem	Duripan Lithic bedrock	12-20 20-30	4-10 ---	Indurated Indurated	0	---	Moderate	High	Low
202:									
Alyan	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
203:									
Anawalt	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	High	Low
204:									
Anawalt	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	High	Low
205:									
Anawalt	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Freznik	Lithic bedrock	20-35	---	Indurated	0	---	Low	High	Low
206:									
Anawalt	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	High	Low
Oreneva	Lithic bedrock	20-40	---	Indurated	0	---	Low	Low	Low
207:									
Anawalt	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	High	Low
Raz	Duripan Lithic bedrock	10-18 20-40	3-18 ---	Strongly cemented Indurated	0	---	Moderate	Moderate	Low
208:									
Anawalt	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
209:									
Atlow	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
210:									
Baconcamp	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Clamp	Lithic bedrock	4-14	---	Indurated	0	---	Moderate	Moderate	Low
211:									
Baconcamp	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
212:									
Bluesters	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
213:									
Bluesters, dry	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
214:									
Boilout	Duripan	14-20	4-16	Moderately cemented	0	---	Low	Moderate	Low
	Duripan	18-38	6-25	Indurated					
	Duripan	24-63	3-10	Very strongly cemented					
215:									
Bonnick	---	---	---	---	0	---	Low	Moderate	Low
216:									
Bonnick	---	---	---	---	0	---	Low	Moderate	Low
217:									
Bonnick	---	---	---	---	0	---	Low	Moderate	Low
Fort Rock	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
218:									
Bonnick	---	---	---	---	0	---	Low	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
218:									
Fort Rock	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
219:									
Bonnick, low precipitation	---	---	---	---	0	---	Low	Moderate	Low
Fort Rock, low precipitation	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
220:									
Bonnick	---	---	---	---	0	---	Low	Moderate	Low
Kunceider	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
221:									
Bonnick	---	---	---	---	0	---	Low	Moderate	Low
Morehouse	---	---	---	---	0	---	Low	High	High
222:									
Booth	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	High	Low
	Lithic bedrock	22-42	---	Indurated					
223:									
Booth	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	High	Low
	Lithic bedrock	22-42	---	Indurated					
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
224:									
Borobey	---	---	---	---	0	---	Low	Moderate	Low
225:									
Borobey	---	---	---	---	0	---	Low	Moderate	Low
226:									
Borobey	---	---	---	---	0	---	Low	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
227:									
Borobey----------------	---	---	---	---	0	---	Low	Moderate	Low
Morehouse--------------	---	---	---	---	0	---	Low	High	High
228:									
Borobey----------------	---	---	---	---	0	---	Low	Moderate	Low
Oatmanflat-------------	Duripan	40-60	4-24	Strongly cemented	0	---	Low	Moderate	Low
229:									
Borobey----------------	---	---	---	---	0	---	Low	Moderate	Low
Overallflat------------	---	---	---	---	0	---	High	Moderate	Low
230:									
Brabble----------------	Duripan Lithic bedrock	20-40 30-50	5-30 ---	Indurated Indurated	0	---	Moderate	Moderate	Moderate
Calderwood-------------	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
231:									
Brace------------------	Duripan Lithic bedrock	20-37 22-40	2-8 ---	Indurated Indurated	0	---	Moderate	Moderate	Moderate
Foleylake--------------	Duripan Lithic bedrock	21-25 22-30	1-5 ---	Indurated Indurated	0	---	Low	Moderate	Low
232:									
Bridgewell-------------	---	---	---	---	0	---	High	Moderate	Moderate
233:									
Bridgewell-------------	---	---	---	---	0	---	Moderate	High	Low
234:									
Bullump, south---------	---	---	---	---	0	---	Moderate	Low	Low
Rock outcrop-----------	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Nuss, south------------	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
236:									
Bunyard----------------	---	---	---	---	0	---	Low	Moderate	High
237:									
Cabinspring------------	Lithic bedrock	30-40	---	Indurated	0	---	Low	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
237:									
Chesebro	---	---	---	---	0	---	Moderate	Moderate	Low
Hayespring	---	---	---	---	0	---	Low	Moderate	Low
238:									
Calderwood	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
McConnel	---	---	---	---	0	---	Moderate	Moderate	Moderate
239:									
Carryback, eroded	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
240:									
Carryback	Lithic bedrock	20-40	---	Indurated	0	---	Low	High	Low
241:									
Carryback	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	Low
Pearlwise	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
242:									
Carvix	---	---	---	---	0	---	Moderate	Moderate	Moderate
243:									
Catlow	---	---	---	---	0	---	Moderate	Moderate	Low
244:									
Catlow	---	---	---	---	0	---	Moderate	Moderate	Low
Davey	---	---	---	---	0	---	Low	Low	Low
245:									
Catnapp	Lithic bedrock	20-30	---	Indurated	0	---	Moderate	High	Moderate
246:									
Chancelakes	---	---	---	---	0	---	Low	High	Moderate
Silverash	---	---	---	---	0	---	Low	High	Moderate
247:									
Chen	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	Low
Erakatak	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Lambring, north	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Low	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
248:									
Chesebro	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
249:									
Cinderfall	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Low	Moderate	Moderate
Fort Rock	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
Kunceider	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
250:									
Cleavage	Lithic bedrock	10-20	---	Very strongly cemented	0	---	Moderate	Low	Low
Ninemile	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
Westbutte	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
251:									
Cleet	Duripan	14-20	40-46	Very strongly cemented	0	---	Moderate	Moderate	Low
252:									
Clurde	---	---	---	---	0	---	Moderate	High	Moderate
253:									
Clurde	---	---	---	---	0	---	Moderate	High	Moderate
Toll	---	---	---	---	0	---	Low	Moderate	Moderate
254:									
Connleyhills	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
255:									
Connleyhills	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
256:									
Cooperdraw	Duripan	20-40	20-36	Indurated	0	---	Moderate	Low	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
256:									
Fertaline	Duripan	20-30	2-12	Indurated	0	---	Low	Moderate	Moderate
257:									
Corral, low precipitation	Paralithic bedrock	12-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
258:									
Coztur	Lithic bedrock	13-20	---	Indurated	0	---	Moderate	Moderate	Low
259:									
Crackedground	Lithic bedrock	40-60	---	Indurated	0	---	Low	Moderate	Low
260:									
Crackedground	Lithic bedrock	40-60	---	Indurated	0	---	Low	Moderate	Low
261:									
Crackedground	Lithic bedrock	40-60	---	Indurated	0	---	Low	Moderate	Low
Kunceider	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
262:									
Crackedground	Lithic bedrock	40-60	---	Indurated	0	---	Low	Moderate	Low
Milcan	Duripan	20-40	10-40	Indurated	0	---	Low	Moderate	Low
263:									
Crackedground	Lithic bedrock	40-60	---	Indurated	0	---	Low	Moderate	Low
Milcan	Duripan	20-40	10-40	Indurated	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
264:									
Crackedground	Lithic bedrock	40-60	---	Indurated	0	---	Low	Moderate	Low
Wegert	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
266:									
Deppy	Duripan	10-20	4-17	Strongly cemented	0	---	Moderate	Moderate	Low
Rubble land	---	---	---	---	0	---	---	---	---
267:									
Deppy	Duripan	10-20	4-17	Strongly cemented	0	---	Moderate	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
267:									
Tumtum	Duripan	9-18	4-13	Indurated	0	---	Moderate	Moderate	Low
268:									
Derallo	Paralithic bedrock	40-60	---	Moderately cemented	0	---	Low	Moderate	Low
Chesebro	---	---	---	---	0	---	Moderate	Moderate	Low
269:									
Derallo, north	Paralithic bedrock	40-60	---	Moderately cemented	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
270:									
Derallo, south	Paralithic bedrock	40-60	---	Moderately cemented	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
271:									
Diablopeak	Lithic bedrock	16-20	---	Indurated	0	---	Low	High	Moderate
Yankeewell	Duripan Lithic bedrock	10-20 18-26	5-15 ---	Strongly cemented Indurated	0	---	Moderate	High	Moderate
272:									
Drakesflat	Lithic bedrock	20-40	---	Indurated	0	---	Low	High	Moderate
273:									
Drakesflat	Lithic bedrock	20-40	---	Indurated	0	---	Low	High	Moderate
274:									
Dune land	---	---	---	---	0	---	---	---	---
275:									
Dune land	---	---	---	---	0	---	---	---	---
Fossilake	---	---	---	---	0	---	High	Moderate	High
Salhouse	---	---	---	---	0	---	Low	High	Moderate
276:									
Dune land	---	---	---	---	0	---	---	---	---

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
276:									
Morehouse	---	---	---	---	0	---	Low	High	High
277:									
Dune land	---	---	---	---	0	---	---	---	---
Salhouse	---	---	---	---	0	---	Low	High	Moderate
278:									
Dunres	Duripan Lithic bedrock	14-20 20-60	6-46 ---	Indurated Indurated	0	---	High	High	Low
279:									
Dunres, thick surface	Duripan Lithic bedrock	14-20 20-60	6-46 ---	Indurated Indurated	0	---	High	High	Low
280:									
Dunres	Duripan Lithic bedrock	14-20 20-60	6-46 ---	Indurated Indurated	0	---	High	High	Low
281:									
Dunres	Duripan Lithic bedrock	14-20 20-60	6-46 ---	Indurated Indurated	0	---	High	High	Low
Henkle	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
282:									
Dunres	Duripan Lithic bedrock	14-20 20-60	6-46 ---	Indurated Indurated	0	---	High	High	Low
Moonbeam	Duripan Lithic bedrock	13-20 20-40	1-27 ---	Indurated Indurated	0	---	Low	Moderate	Low
283:									
Dunres	Duripan Lithic bedrock	14-20 20-60	6-46 ---	Indurated Indurated	0	---	High	High	Low
Moonbeam	Duripan Lithic bedrock	13-20 20-40	1-27 ---	Indurated Indurated	0	---	Low	Moderate	Low
Nuss	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
284:									
Dunres	Duripan Lithic bedrock	14-20 20-60	6-46 ---	Indurated Indurated	0	---	High	High	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
284:									
Murlose	Duripan	15-19	3-6	Strongly cemented	0	---	High	Moderate	Low
	Lithic bedrock	20-24	---	Indurated					
Nuss	Paralithic bedrock	14-20	4-6	Moderately cemented	0	---	Low	Moderate	Low
	Lithic bedrock	16-24	---	Indurated					
285:									
Dunres	Duripan	14-20	6-46	Indurated	0	---	High	High	Low
	Lithic bedrock	20-60	---	Indurated					
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Moderate	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
286:									
Dunres	Duripan	14-20	6-46	Indurated	0	---	High	High	Low
	Lithic bedrock	20-60	---	Indurated					
Norcross, cobbly ashy loam surface	Duripan	14-19	2-7	Indurated	0	---	Low	High	Low
	Lithic bedrock	16-21	---	Indurated					
Norcross, very cobbly ashy fine sandy loam surface	Duripan	14-19	2-7	Indurated	0	---	Low	High	Low
	Lithic bedrock	16-21	---	Indurated					
287:									
Edemaps	Duripan	21-24	2-6	Very strongly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	23-30	---	Indurated					
Pernty	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
288:									
Embal	Duripan	40-60	10-20	Weakly cemented	0	---	Low	Moderate	Moderate
289:									
Embal	Duripan	40-60	10-20	Weakly cemented	0	---	Low	Moderate	Moderate
Paulina	---	---	---	---	0	---	Low	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
290:									
Enko	---	---	---	---	0	---	Moderate	Moderate	Moderate
291:									
Enko	---	---	---	---	0	---	Moderate	Moderate	Moderate
292:									
Enko	---	---	---	---	0	---	Moderate	Moderate	Moderate
293:									
Enko	---	---	---	---	0	---	Moderate	Moderate	Moderate
Catlow	---	---	---	---	0	---	Moderate	Moderate	Low
294:									
Enko	---	---	---	---	0	---	Moderate	Moderate	Moderate
McConnel	---	---	---	---	0	---	Moderate	Moderate	Moderate
295:									
Erakatak	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
296:									
Erakatak	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Carryback	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
297:									
Erakatak	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Leevan, south	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
298:									
Erakatak	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
299:									
Erakatak	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Rubble land	---	---	---	---	0	---	---	---	---
300:									
Felcher, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
300:									
Camptank	Lithic bedrock	40-60	---	Indurated	0	---	Low	High	Moderate
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
301:									
Felcher, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Fitzwater, north	---	---	---	---	0	---	Moderate	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
302:									
Felcher, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Oreneva, north	Lithic bedrock	20-40	---	Indurated	0	---	Low	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
303:									
Felcher, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Riddleranch	Lithic bedrock	20-35	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
304:									
Felcher, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
305:									
Felcher, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
306:									
Felcher, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
307:									
Felcher, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
307:									
Brezniak	Lithic bedrock	7-12	---	Indurated	0	---	Low	High	Low
308:									
Felcher, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Westbutte, north	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
309:									
Firelake	Lithic bedrock	4-10	---	Very strongly cemented	0	---	Moderate	Low	Low
Enko	---	---	---	---	0	---	Moderate	Moderate	Moderate
310:									
Fitzwater, south	---	---	---	---	0	---	Moderate	Low	Low
311:									
Fitzwater, north	---	---	---	---	0	---	Moderate	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
312:									
Flagstaff	---	---	---	---	0	---	Low	High	High
313:									
Flagstaff, ashy very fine sandy loam surface	---	---	---	---	0	---	Low	Moderate	High
Flagstaff, ashy sandy loam surface	---	---	---	---	0	---	Low	Moderate	High
314:									
Flagstaff	---	---	---	---	0	---	Low	Moderate	High
Playas	---	---	---	---	0	---	---	---	---
315:									
Flagstaff	---	---	---	---	0	---	Low	Moderate	High
Salhouse	---	---	---	---	0	---	Low	High	Moderate

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
316:									
Foleylake	Duripan Lithic bedrock	21-25 22-30	1-5 ---	Indurated Indurated	0	---	Low	Moderate	Low
Anawalt	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	High	Low
317:									
Fort Rock	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
318:									
Fort Rock	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
319:									
Fort Rock	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
Bonnick	---	---	---	---	0	---	Low	Moderate	Low
320:									
Fort Rock	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
Lapham	Strongly contrasting textural stratification	16-26	---	Noncemented	0	---	Low	High	Moderate
321:									
Fort Rock, warm	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
321:									
Lapham, warm	Strongly contrasting textural stratification	16-26	---	Noncemented	0	---	Low	High	Moderate
322:									
Fort Rock	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
Morehouse	---	---	---	---	0	---	Low	High	High
323:									
Fort Rock	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
Morehouse	---	---	---	---	0	---	Low	High	High
324:									
Fort Rock, moist	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
Morehouse, moist	---	---	---	---	0	---	Low	High	High
325:									
Fort Rock	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
Suckerflat	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
326:									
Fossilake	---	---	---	---	0	---	High	Moderate	High
327:									
Fossilake, cool	---	---	---	---	0	---	High	Moderate	High
Salhouse, cool	---	---	---	---	0	---	Low	High	Moderate

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
328:									
Giranch	Duripan	22-36	24-38	Very strongly cemented	0	---	Low	Moderate	Low
Meld	Duripan	20-40	7-35	Indurated	0	---	Low	Moderate	Low
329:									
Glencabin, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
330:									
Glencabin, north	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
331:									
Glencabin, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
332:									
Glencabin, south, dry	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Glencabin, north, dry	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
333:									
Glencabin	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
334:									
Glencabin	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
335:									
Glencabin, gravelly ashy loamy sand surface	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Glencabin, ashy loamy sand surface	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Wanoga	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
336:									
Glencabin	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Yapoah	---	---	---	---	0	---	High	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
338:									
Goodtack	Duripan Lithic bedrock	16-20 20-48	4-34 ---	Indurated Indurated	0	---	Moderate	Moderate	Moderate
339:									
Goodtack, low precipitation	Duripan Lithic bedrock	16-20 20-48	4-34 ---	Indurated Indurated	0	---	Moderate	Moderate	Moderate
340:									
Goodtack	Duripan Lithic bedrock	16-20 20-48	4-34 ---	Indurated Indurated	0	---	Moderate	Moderate	Moderate
Borobey	---	---	---	---	0	---	Low	Moderate	Low
341:									
Goodtack	Duripan Lithic bedrock	16-20 20-48	4-34 ---	Indurated Indurated	0	---	Moderate	Moderate	Moderate
Borobey	---	---	---	---	0	---	Low	Moderate	Low
342:									
Goodtack	Duripan Lithic bedrock	16-20 20-48	4-34 ---	Indurated Indurated	0	---	Moderate	Moderate	Moderate
Morehouse	---	---	---	---	0	---	Low	Low	Low
343:									
Goodtack	Duripan Lithic bedrock	16-20 20-48	4-34 ---	Indurated Indurated	0	---	Moderate	Moderate	Moderate
Sliptrack	Duripan	20-40	2-20	Indurated	0	---	Low	Moderate	Low
344:									
Gradon	Duripan	20-40	6-25	Indurated	0	---	Moderate	Moderate	Low
345:									
Greenmountain	Duripan	30-40	2-10	Indurated	0	---	Low	Moderate	Moderate
346:									
Greenmountain	Duripan	30-40	2-10	Indurated	0	---	Low	Moderate	Moderate
Jacksplace	Lithic bedrock	24-32	---	Indurated	0	---	Low	Moderate	Low
347:									
Greenmountain	Duripan	30-40	2-10	Indurated	0	---	Low	Moderate	Moderate

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
347:									
Lastcall	Lithic bedrock	26-34	---	Indurated	0	---	Low	Moderate	Low
348:									
Greenmountain	Duripan	30-40	2-10	Indurated	0	---	Low	Moderate	Moderate
Weglike	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
349:									
Hackwood	---	---	---	---	0	---	Moderate	Low	Low
Westbutte, north	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
350:									
Hager, cobbly loam surface	Duripan	20-40	3-10	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	40-60	---	Indurated					
Hager, extremely stony loam surface	Duripan	20-40	3-10	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	40-60	---	Indurated					
351:									
Hayespring	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
352:									
Hayespring	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
Dunres	Duripan	14-20	6-46	Indurated	0	---	High	High	Low
	Lithic bedrock	20-60	---	Indurated					
353:									
Hayespring	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
353:									
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
354:									
Hayespring	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Moderate	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
355:									
Hayespring, cobbly ashy loamy sand surface	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
Moonbeam, cobbly ashy loam surface	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
356:									
Hayespring, low precipitation	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
Moonbeam, low precipitation	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
357:									
Hayespring	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
357:									
Senra	Duripan Lithic bedrock	15-20 20-40	5-25 ---	Indurated Indurated	0	---	Low	Moderate	Low
358:									
Helphenstein	---	---	---	---	0	---	Low	High	High
359:									
Helphenstein, frequently ponded	---	---	---	---	0	---	Low	High	High
360:									
Helphenstein	---	---	---	---	0	---	Low	High	High
361:									
Helphenstein	---	---	---	---	0	---	Low	High	High
Kewake	---	---	---	---	0	---	Low	High	High
362:									
Helphenstein, frequently ponded	---	---	---	---	0	---	Low	Moderate	Moderate
Legler	---	---	---	---	0	---	Moderate	Low	Low
Playas	---	---	---	---	0	---	---	---	---
363:									
Helphenstein, frequently ponded	---	---	---	---	0	---	Low	High	High
Pitcheranch	---	---	---	---	0	---	High	High	Low
Reese	---	---	---	---	0	---	High	High	High
364:									
Helphenstein	---	---	---	---	0	---	Low	High	High
Turpin	---	---	---	---	0	---	Moderate	High	High
Kewake	---	---	---	---	0	---	Low	High	High
365:									
Henkle	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
365:									
Ludi	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Low
366:									
Henkle	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Wanoga	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
367:									
Henkle, dry	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Wanoga, dry	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
368:									
Horning	---	---	---	---	0	---	Low	Moderate	High
369:									
Horning	---	---	---	---	0	---	Low	Moderate	High
Tonor	---	---	---	---	0	---	Low	Moderate	Moderate
370:									
Icene	---	---	---	---	0	---	Moderate	High	High
Playas	---	---	---	---	0	---	---	---	---
371:									
Ipsoot	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Low
372:									
Ipsoot, north	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Low
373:									
Ipsoot, south	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
374:									
Jacksplace, moist	Lithic bedrock	24-32	---	Indurated	0	---	Low	Moderate	Low
375:									
Jacksplace	Lithic bedrock	24-32	---	Indurated	0	---	Low	Moderate	Low
376:									
Jacksplace	Lithic bedrock	24-32	---	Indurated	0	---	Low	Moderate	Low
377:									
Jacksplace	Lithic bedrock	24-32	---	Indurated	0	---	Low	Moderate	Low
378:									
Jacksplace	Lithic bedrock	24-32	---	Indurated	0	---	Low	Moderate	Low
Derallo	Paralithic bedrock	40-60	---	Moderately cemented	0	---	Low	Moderate	Low
Glencabin	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
379:									
Jacksplace	Lithic bedrock	24-32	---	Indurated	0	---	Low	Moderate	Low
Senra	Duripan Lithic bedrock	15-20 20-40	5-25 ---	Indurated Indurated	0	---	Low	Moderate	Low
380:									
Kewake	---	---	---	---	0	---	Low	High	High
382:									
Kewake	---	---	---	---	0	---	Low	High	High
Helphenstein, frequently ponded	---	---	---	---	0	---	Low	High	High
383:									
Kewake	---	---	---	---	0	---	Low	High	High
Helphenstein, dry	---	---	---	---	0	---	Low	High	High
384:									
Kewake	---	---	---	---	0	---	Low	High	High
Icene	---	---	---	---	0	---	Moderate	High	High

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
385:									
Kewake	---	---	---	---	0	---	Low	High	High
Ozamis	---	---	---	---	0	---	High	High	Moderate
Reese	---	---	---	---	0	---	High	High	High
386:									
Kewake	---	---	---	---	0	---	Low	High	High
Turpin	---	---	---	---	0	---	Moderate	High	High
387:									
Kewake, sodic	---	---	---	---	0	---	Low	High	High
Turpin, sodic	---	---	---	---	0	---	Moderate	High	High
388:									
Krackle, north	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Krackle, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
389:									
Kunceider	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
390:									
Kunceider	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Fort Rock	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Low	Moderate	Moderate
391:									
Kunceider	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
392:									
Kunceider	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Wegert	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
393:									
Laidlaw	---	---	---	---	0	---	Moderate	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
394:									
Laidlaw	---	---	---	---	0	---	Moderate	Moderate	Low
395:									
Laidlaw, dry	---	---	---	---	0	---	Moderate	Moderate	Low
Wanoga, dry	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
397:									
Lapham	Strongly contrasting textural stratification	16-26	---	Noncemented	0	---	Low	High	Moderate
398:									
Lapine, north	---	---	---	---	0	---	Moderate	Moderate	Low
399:									
Lapine	---	---	---	---	0	---	Moderate	Moderate	Low
400:									
Lapine	---	---	---	---	0	---	Moderate	Moderate	Low
401:									
Lastcall	Lithic bedrock	26-34	---	Indurated	0	---	Low	Moderate	Low
402:									
Lastcall, gently sloping	Lithic bedrock	26-34	---	Indurated	0	---	Low	Moderate	Low
Lastcall, nearly level	Lithic bedrock	26-34	---	Indurated	0	---	Low	Moderate	Low
403:									
Lastcall	Lithic bedrock	26-34	---	Indurated	0	---	Low	Moderate	Low
Hayespring	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
404:									
Lastcall	Lithic bedrock	26-34	---	Indurated	0	---	Low	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
404:									
Hayespring	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
405:									
Lastcall	Lithic bedrock	26-34	---	Indurated	0	---	Low	Moderate	Low
Jacksplace	Lithic bedrock	24-32	---	Indurated	0	---	Low	Moderate	Low
Embal	Duripan	40-60	10-20	Weakly cemented	0	---	Low	Moderate	Moderate
407:									
Lastcall	Lithic bedrock	26-34	---	Indurated	0	---	Low	Moderate	Low
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
408:									
Leevan	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Fitzwater, south	---	---	---	---	0	---	Moderate	Low	Low
Chen	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate	Moderate
409:									
Leevan, north	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Lambring, north	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
410:									
Legler	---	---	---	---	0	---	Moderate	Moderate	Low
411:									
Bridgewell	---	---	---	---	0	---	Moderate	High	Low
Legler	---	---	---	---	0	---	Moderate	Low	Low
412:									
Bridgewell	---	---	---	---	0	---	Moderate	High	Low
Chancelakes	---	---	---	---	0	---	High	High	Moderate

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
413:									
Lithic Haploxerolls, cool	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Lava flows	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
414:									
Lithic Haploxerolls, dry	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Lava flows	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
415:									
Locane	Lithic bedrock	10-20	---	Indurated	0	---	Low	High	Low
416:									
Locane	Lithic bedrock	10-20	---	Indurated	0	---	Low	High	Low
Anawalt	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	High	Low
417:									
Locane	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Deseed	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
418:									
Locolake	Duripan Lithic bedrock	14-20 19-24	3-9 ---	Indurated Indurated	0	---	Moderate	Low	Low
419:									
Locolake	Duripan Lithic bedrock	14-20 19-24	3-9 ---	Indurated Indurated	0	---	Moderate	Moderate	Moderate
McConnel	---	---	---	---	0	---	Moderate	Moderate	Moderate
420:									
Lostforest	Lithic bedrock	20-26	---	Indurated	0	---	Low	Moderate	Moderate
Sandrock	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Morehouse	---	---	---	---	0	---	Low	High	High

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
422:									
Ludi	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Low
423:									
Ludi, low precipitation, north	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Low
424:									
Ludi, low precipitation, south	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Low
425:									
Ludi, low precipitation, north	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Low
426:									
Ludi, low precipitation, south	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Low
427:									
Ludi	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Low
428:									
Ludi, south	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
428:									
Glassbutte	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Moderate
Ludi, north	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Low
429:									
Ludi	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Low
Glassbutte	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Moderate
430:									
Lyeflat	Lithic bedrock	20-40	---	Indurated	0	---	Low	High	Moderate
431:									
Lyeflat	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	Moderate
432:									
Lyeflat, gravelly sandy loam surface	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	Moderate
Lyeflat, very cobbly sandy loam surface	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	Moderate
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
433:									
Lyeflat	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	Moderate
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
434:									
McConnel	---	---	---	---	0	---	Moderate	Moderate	Moderate

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
435:									
McConnel, sodic substratum	---	---	---	---	0	---	Moderate	Moderate	Moderate
436:									
McConnel	---	---	---	---	0	---	Moderate	Moderate	Moderate
437:									
McConnel	---	---	---	---	0	---	Moderate	Moderate	Moderate
438:									
McConnel	---	---	---	---	0	---	Moderate	Moderate	Moderate
Davey	---	---	---	---	0	---	Low	Low	Low
439:									
McConnel	---	---	---	---	0	---	Moderate	Moderate	Moderate
Poorjug, overblown	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Low	Low
440:									
McConnel	---	---	---	---	0	---	Moderate	Moderate	Moderate
Turpin	---	---	---	---	0	---	Moderate	High	Moderate
441:									
McNye	Lithic bedrock	40-60	---	Indurated	0	---	Low	High	Moderate
Wildhill	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
442:									
Meld	Duripan	20-40	7-35	Indurated	0	---	Low	Moderate	Low
Giranch	Duripan	22-36	24-38	Very strongly cemented	0	---	Low	Moderate	Low
443:									
Menbo, dry	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
444:									
Merlin	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	Low
445:									
Mesman	---	---	---	---	0	---	Low	High	High

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
446:									
Mesman, slightly alkaline	---	---	---	---	0	---	Low	High	High
447:									
Mesman	---	---	---	---	0	---	Low	High	High
McConnel	---	---	---	---	0	---	Moderate	Moderate	Moderate
Kewake	---	---	---	---	0	---	Low	High	High
448:									
Milcan	Duripan	20-40	10-40	Indurated	0	---	Low	Moderate	Low
449:									
Milcan	Duripan	20-40	10-40	Indurated	0	---	Low	Moderate	Low
Jacksplace	Lithic bedrock	24-32	---	Indurated	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
450:									
Millenium	---	---	---	---	0	---	Low	Moderate	Low
451:									
Millenium, basin floor	---	---	---	---	0	---	Low	Moderate	Low
452:									
Millenium	---	---	---	---	0	---	Low	Moderate	Low
Stauffer	---	---	---	---	0	---	Moderate	Moderate	Low
Raztack	Duripan	40-60	2-22	Weakly cemented	0	---	High	High	Low
455:									
Moonbeam	Duripan Lithic bedrock	13-20 20-40	1-27 ---	Indurated Indurated	0	---	Low	Moderate	Low
456:									
Moonbeam	Duripan Lithic bedrock	13-20 20-40	1-27 ---	Indurated Indurated	0	---	Low	Moderate	Low
457:									
Moonbeam	Duripan Lithic bedrock	13-20 20-40	1-27 ---	Indurated Indurated	0	---	Low	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
458:									
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
459:									
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
460:									
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
461:									
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Connleyhills	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
462:									
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Goodtack	Duripan	16-20	4-34	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	20-48	---	Indurated					
463:									
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Goodtack	Duripan	16-20	4-34	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	20-48	---	Indurated					
464:									
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Hayespring	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
465:									
Moonbeam, moist	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
465:									
Hayespring, moist	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
466:									
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Meld	Duripan	20-40	7-14	Indurated	0	---	Low	Moderate	Low
467:									
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Senra	Duripan	15-20	5-25	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
468:									
Moonbeam, gravelly ashy fine sandy loam surface	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Senra	Duripan	15-20	5-25	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
469:									
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Senra	Duripan	15-20	5-25	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Hayespring	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
470:									
Morehouse	---	---	---	---	0	---	Low	High	High

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
471:									
Morehouse	---	---	---	---	0	---	Low	High	High
472:									
Morehouse	---	---	---	---	0	---	Low	High	High
473:									
Morehouse	---	---	---	---	0	---	Low	Low	Low
474:									
Morehouse, ashy fine sand surface	---	---	---	---	0	---	Low	High	High
Morehouse, ashy sand surface	---	---	---	---	0	---	Low	High	High
475:									
Morehouse	---	---	---	---	0	---	Low	High	High
Playas	---	---	---	---	0	---	---	---	---
476:									
Morfitt	---	---	---	---	0	---	Moderate	High	Low
477:									
Murlose	Duripan Lithic bedrock	15-19 20-24	3-6 ---	Strongly cemented Indurated	0	---	High	Moderate	Low
478:									
Murlose	Duripan Lithic bedrock	15-19 20-24	3-6 ---	Strongly cemented Indurated	0	---	High	Moderate	Low
479:									
Ninemile	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
480:									
Ninemile, low precipitation	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
481:									
Ninemile	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
Arcia	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
482:									
Ninemile	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
482:									
Carvix	---	---	---	---	0	---	Moderate	Moderate	Moderate
483:									
Ninemile	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
Edemaps	Duripan	21-24	2-6	Very strongly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	23-30	---	Indurated					
484:									
Ninemile	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
Reluctan	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
485:									
Ninemile	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
Reluctan	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rubble land	---	---	---	---	0	---	---	---	---
486:									
Ninemile, north	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Felcher, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
487:									
Ninemile	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
Westbutte	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
488:									
Ninemile	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
Westbutte	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Ninemile, extremely stony surface	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
489:									
Noidee	Lithic bedrock	14-20	---	Indurated	0	---	Low	High	High

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
490:									
Norcross, extremely cobbly ashy loam surface	Duripan	14-19	2-7	Indurated	0	---	Low	High	Low
	Lithic bedrock	16-21	---	Indurated					
Norcross, cobbly ashy fine sandy loam surface	Duripan	14-19	2-7	Indurated	0	---	Low	High	Low
	Lithic bedrock	16-21	---	Indurated					
491:									
Norcross	Duripan	14-19	2-7	Indurated	0	---	Low	High	Low
	Lithic bedrock	16-21	---	Indurated					
492:									
Norcross	Duripan	14-19	2-7	Indurated	0	---	Low	High	Low
	Lithic bedrock	16-21	---	Indurated					
493:									
Oatmanflat	Duripan	40-60	4-24	Strongly cemented	0	---	Low	Moderate	Low
494:									
Oatmanflat	Duripan	40-60	4-24	Strongly cemented	0	---	Low	Moderate	Low
Borobey	---	---	---	---	0	---	Low	Moderate	Low
495:									
Old Camp	Lithic bedrock	13-20	---	Indurated	0	---	Moderate	Moderate	Moderate
496:									
Old Camp, south	Lithic bedrock	13-20	---	Indurated	0	---	Moderate	Moderate	Moderate
497:									
Old Camp	Lithic bedrock	13-20	---	Indurated	0	---	Moderate	Moderate	Moderate
Felcher, north	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
498:									
Osoll	Duripan	8-14	12-26	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	20-40	---	Indurated					
Panlee	Duripan	40-60	6-20	Indurated	0	---	Moderate	High	Moderate

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
498:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
499:									
Overallflat	---	---	---	---	0	---	High	Moderate	Low
500:									
Overallflat, pluvial lake	---	---	---	---	0	---	High	Moderate	Low
501:									
Overallflat	---	---	---	---	0	---	High	Moderate	Low
Morehouse	---	---	---	---	0	---	Low	High	High
502:									
Overallflat	---	---	---	---	0	---	High	Moderate	Low
Silverash	---	---	---	---	0	---	Low	High	Moderate
503:									
Overallflat, hummocky	---	---	---	---	0	---	High	Moderate	Low
Silverash	---	---	---	---	0	---	Low	High	Moderate
504:									
Ozamis, saline	---	---	---	---	0	---	High	High	High
505:									
Ozamis	---	---	---	---	0	---	High	High	Moderate
Reese	---	---	---	---	0	---	High	High	High
506:									
Pait	---	---	---	---	0	---	Moderate	Low	Low
507:									
Paulina	---	---	---	---	0	---	High	Moderate	Low
508:									
Paulina, very gravelly substratum	---	---	---	---	0	---	High	Moderate	Low
509:									
Paulina	---	---	---	---	0	---	High	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
509:									
Chinarise	---	---	---	---	0	---	Low	Moderate	High
511:									
Pernty	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
512:									
Pernty	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Chesebro	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
513:									
Pernty	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Low	Low
Cleavage	Lithic bedrock	10-20	---	Very strongly cemented	0	---	Moderate	Low	Low
514:									
Pernty, south	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Glencabin	Lithic bedrock	40-80	---	Indurated	0	---	High	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
516:									
Pernty, south	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Westbutte, north	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Ninemile	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
517:									
Picturerock	---	---	---	---	0	---	Low	Moderate	Moderate
518:									
Pitcheranch	---	---	---	---	0	---	High	High	Moderate
519:									
Pitcheranch	---	---	---	---	0	---	High	Moderate	Low
Chinarise	---	---	---	---	0	---	Low	Moderate	High
520:									
Playas	---	---	---	---	0	---	---	---	---

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
521:									
Playas, saline	---	---	---	---	0	---	---	---	---
522:									
Playas	---	---	---	---	0	---	---	---	---
Helphenstein	---	---	---	---	0	---	Low	High	High
523:									
Poorjug	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Moderate
Poorjug, overblown	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Low	Low
524:									
Poorjug	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Moderate
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
525:									
Porterfield	Paralithic bedrock	12-20	---	Moderately cemented	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
526:									
Puzzlebark	Duripan	11-16	5-10	Very strongly cemented	0	---	Low	Moderate	Low
	Lithic bedrock	16-24	---	Indurated					
Morehouse, moderately steep	---	---	---	---	0	---	Low	Low	Low
Morehouse, gently sloping	---	---	---	---	0	---	Low	Low	Low
527:									
Puzzlebark	Duripan	11-16	5-10	Very strongly cemented	0	---	Low	Moderate	Low
	Lithic bedrock	16-24	---	Indurated					
Sandrock	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
528:									
Rabbithills, overblown	Duripan	12-16	3-24	Strongly cemented	0	---	Low	Moderate	Moderate
	Paralithic bedrock	40-60	---	Weakly cemented					

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
528:									
Rabbithills------------	Duripan	12-16	3-24	Strongly cemented	0	---	Low	Moderate	Moderate
	Paralithic bedrock	40-60	---	Weakly cemented					
529:									
Rabbithills------------	Duripan	12-16	3-24	Strongly cemented	0	---	Low	Moderate	Moderate
	Paralithic bedrock	40-60	---	Weakly cemented					
Rabbithills, overblown	Duripan	12-16	3-24	Strongly cemented	0	---	Low	Moderate	Moderate
	Paralithic bedrock	40-60	---	Weakly cemented					
530:									
Rabbithills------------	Duripan	12-16	3-24	Strongly cemented	0	---	Low	Moderate	Moderate
	Paralithic bedrock	40-60	---	Weakly cemented					
531:									
Rabbithills, sodic-----	Duripan	12-16	3-24	Strongly cemented	0	---	Low	Moderate	Moderate
	Paralithic bedrock	40-60	---	Weakly cemented					
532:									
Rabbithills------------	Duripan	10-20	3-24	Strongly cemented	0	---	Moderate	Moderate	Moderate
	Paralithic bedrock	40-60	---	Weakly cemented					
533:									
Rabbithills------------	Duripan	12-16	3-24	Strongly cemented	0	---	Low	Moderate	Moderate
	Paralithic bedrock	40-60	---	Weakly cemented					
534:									
Rabbithills------------	Duripan	12-16	3-24	Strongly cemented	0	---	Low	Moderate	Moderate
	Paralithic bedrock	40-60	---	Weakly cemented					
Helphenstein, frequently ponded-----	---	---	---	---	0	---	Low	Moderate	Moderate
535:									
Ratto------------------	Duripan	12-20	3-8	Indurated	0	---	Moderate	Moderate	Moderate

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
536:									
Raz, overblown	Duripan	10-18	3-18	Strongly cemented	0	---	Moderate	Low	Low
	Lithic bedrock	20-40	---	Indurated					
537:									
Raz	Duripan	10-18	3-18	Strongly cemented	0	---	Moderate	Low	Low
	Lithic bedrock	20-40	---	Indurated					
Brace	Duripan	20-37	2-8	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	22-40	---	Indurated					
538:									
Raz, high precipitation	Duripan	10-18	3-18	Strongly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Brace, high precipitation	Duripan	20-37	2-8	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	22-40	---	Indurated					
539:									
Raz, low precipitation	Duripan	10-18	3-18	Strongly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Brace, low precipitation	Duripan	20-37	2-8	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	22-40	---	Indurated					
540:									
Raz, overblown	Duripan	10-18	3-18	Strongly cemented	0	---	Moderate	Low	Low
	Lithic bedrock	20-40	---	Indurated					
Brace, overblown	Duripan	20-37	2-8	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	22-40	---	Indurated					
541:									
Raz	Duripan	10-18	3-18	Strongly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Poorjug	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Moderate
542:									
Raz	Duripan	10-18	3-18	Strongly cemented	0	---	Moderate	Low	Low
	Lithic bedrock	20-40	---	Indurated					
Reallis	---	---	---	---	0	---	Moderate	Moderate	Moderate

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
543:									
Raztack	Duripan	40-60	2-22	Weakly cemented	0	---	High	High	Low
Silverash	---	---	---	---	0	---	Low	High	Moderate
Embal	Duripan	40-60	10-20	Weakly cemented	0	---	Low	Moderate	Moderate
544:									
Reallis	---	---	---	---	0	---	Moderate	Moderate	Moderate
545:									
Reallis	---	---	---	---	0	---	Moderate	Moderate	Moderate
546:									
Reallis, sandy loam surface	---	---	---	---	0	---	Moderate	Moderate	Moderate
Reallis, fine sandy loam surface	---	---	---	---	0	---	Moderate	Moderate	Moderate
547:									
Reallis	---	---	---	---	0	---	Moderate	Moderate	Moderate
Yankeewell	Duripan Lithic bedrock	10-20 18-26	5-15 ---	Strongly cemented Indurated	0	---	Moderate	High	Moderate
548:									
Redcanyon, north	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	Moderate
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
549:									
Redcanyon, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	Moderate
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
550:									
Redcliff, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
551:									
Reese	---	---	---	---	0	---	High	High	High
Ozamis	---	---	---	---	0	---	High	High	Moderate

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
552:									
Reluctan	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
553:									
Reluctan	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Arness	Duripan Lithic bedrock	12-19 20-40	4-10 ---	Indurated Indurated	0	---	Moderate	Moderate	Low
554:									
Riddleranch, north	Lithic bedrock	20-35	---	Indurated	0	---	Moderate	Low	Low
555:									
Riddleranch, north	Lithic bedrock	20-35	---	Indurated	0	---	Moderate	Low	Low
556:									
Riddleranch, south	Lithic bedrock	20-35	---	Indurated	0	---	Moderate	Low	Low
Lambring, north	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
557:									
Rinconflat	---	---	---	---	0	---	Moderate	Moderate	Moderate
558:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Rubble land	---	---	---	---	0	---	---	---	---
559:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Blackhills	Lithic bedrock	10-17	---	Indurated	0	---	Low	Moderate	Moderate
560:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Blackhills	Lithic bedrock	10-17	---	Indurated	0	---	Low	Moderate	Moderate
Glencabin, north	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
561:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Felcher, south	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
562:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Shukash	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	High	High	Low
563:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Xeric Haplocambids	Lithic bedrock	10-80	---	Indurated	0	---	Moderate	Low	Low
564:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Xeric Haplocambids, south	Lithic bedrock	10-80	---	Indurated	0	---	Moderate	Low	Low
Rubble land	---	---	---	---	0	---	---	---	---
565:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Xerolls, south	Lithic bedrock	10-80	---	Indurated	0	---	Moderate	Low	Low
566:									
Royst	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
567:									
Royst	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Ninemile	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
568:									
Royst	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Nuss	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
569:									
Sagehen	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
570:									
Sagehen	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
570:									
Raz	Duripan Lithic bedrock	10-18 20-40	3-18 ---	Strongly cemented Indurated	0	---	Moderate	Low	Low
571:									
Salhouse	---	---	---	---	0	---	Low	High	Moderate
572:									
Salhouse, strongly alkaline	---	---	---	---	0	---	Low	High	Moderate
573:									
Salhouse	---	---	---	---	0	---	Low	High	Moderate
Tonor	---	---	---	---	0	---	Low	Moderate	Moderate
574:									
Seharney	Duripan Lithic bedrock	11-19 13-30	1-3 ---	Strongly cemented Indurated	0	---	Moderate	Low	Low
575:									
Seharney	Duripan Lithic bedrock	11-19 13-30	1-3 ---	Strongly cemented Indurated	0	---	Moderate	Low	Low
Rabbithills	Duripan Paralithic bedrock	12-16 40-60	3-24 ---	Strongly cemented Weakly cemented	0	---	Low	Moderate	Moderate
Enko	---	---	---	---	0	---	Moderate	Moderate	Moderate
576:									
Senra	Duripan Lithic bedrock	15-20 20-40	5-25 ---	Indurated Indurated	0	---	Low	Moderate	Low
577:									
Senra	Duripan Lithic bedrock	15-20 20-40	5-25 ---	Indurated Indurated	0	---	Low	Moderate	Low
578:									
Senra	Duripan Lithic bedrock	15-20 20-40	5-25 ---	Indurated Indurated	0	---	Low	Moderate	Low
Borobey	---	---	---	---	0	---	Low	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
579:									
Senra------------------	Duripan	15-20	5-25	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Dunres-----------------	Duripan	14-20	6-46	Indurated	0	---	High	High	Low
	Lithic bedrock	20-60	---	Indurated					
580:									
Senra------------------	Duripan	15-20	5-25	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Goodtack---------------	Duripan	16-20	4-34	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	20-48	---	Indurated					
581:									
Senra------------------	Duripan	15-20	5-25	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Goodtack---------------	Duripan	16-20	4-34	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	20-48	---	Indurated					
582:									
Senra------------------	Duripan	15-20	5-25	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Goodtack---------------	Duripan	16-20	4-34	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	20-48	---	Indurated					
Suckerflat-------------	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
583:									
Senra------------------	Duripan	15-20	5-25	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Hayespring-------------	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
584:									
Senra, droughty--------	Duripan	15-20	5-25	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
584:									
Hayespring, droughty	Duripan	20-40	2-12	Moderately cemented	0	---	Moderate	Low	Low
	Duripan	22-52	0-8	Very strongly cemented					
	Lithic bedrock	30-60	---	Indurated					
585:									
Senra	Duripan	15-20	5-25	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Moonbeam	Duripan	13-20	1-27	Indurated	0	---	Low	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
586:									
Shanahan	---	---	---	---	0	---	Moderate	High	Low
587:									
Shanahan, low landscape position	---	---	---	---	0	---	Moderate	High	Low
588:									
Shanahan, north	---	---	---	---	0	---	Moderate	High	Low
Shukash	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	High	High	Low
589:									
Shukash	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	High	High	Low
590:									
Shukash, cool	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	High	High	Low
591:									
Shukash, north	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	High	High	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
591:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
592:									
Shukash, south	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	High	High	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
593:									
Shukash	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	High	High	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
594:									
Shukash	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	High	High	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
595:									
Shukash	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	High	High	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
596:									
Shukash	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	High	High	Low
Shanahan	---	---	---	---	0	---	Moderate	High	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
597:									
Shukash	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	High	High	Low
Wanoga	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
598:									
Sisters	Lithic bedrock	40-80	---	Indurated	0	---	High	High	Low
Wanoga	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
599:									
Sliptrack	Duripan	20-40	2-20	Indurated	0	---	Low	Moderate	Low
Moonbeam	Duripan Lithic bedrock	13-20 20-40	1-27 ---	Indurated Indurated	0	---	Low	Moderate	Low
600:									
Sliptrack	Duripan	20-40	2-20	Indurated	0	---	Low	Moderate	Low
Oatmanflat	Duripan	40-60	4-24	Strongly cemented	0	---	Low	Moderate	Low
601:									
Snakepit	Duripan	20-35	6-10	Strongly cemented	0	---	Low	Moderate	Moderate
602:									
Southcat	---	---	---	---	0	---	Low	High	High
603:									
Southcat	---	---	---	---	0	---	Low	High	High
Kewake	---	---	---	---	0	---	Low	High	High
604:									
Southcat	---	---	---	---	0	---	Low	High	High
Playas	---	---	---	---	0	---	---	---	---

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
605:									
Spiderhole, very cobbly loamy sand surface	Duripan	10-20	10-18	Strongly cemented	0	---	Low	High	Moderate
	Lithic bedrock	20-28	---	Indurated					
Spiderhole, very gravelly loamy sand surface	Duripan	10-20	10-18	Strongly cemented	0	---	Low	High	Moderate
	Lithic bedrock	20-28	---	Indurated					
606:									
Stampede	Duripan	20-37	5-10	Indurated	0	---	Low	Moderate	Low
607:									
Steiger	---	---	---	---	0	---	High	Moderate	Low
608:									
Steiger, cool	---	---	---	---	0	---	High	Moderate	Low
609:									
Steiger	---	---	---	---	0	---	High	Moderate	Low
610:									
Steiger, north	---	---	---	---	0	---	High	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
611:									
Steiger, south	---	---	---	---	0	---	High	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
612:									
Suckerflat	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
613:									
Suckerflat	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
614:									
Suckerflat	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
615:									
Suckerflat, north	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
616:									
Suckerflat, south	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
617:									
Suckerflat	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
618:									
Suckerflat	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Weglike	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
619:									
Silverash	---	---	---	---	0	---	Low	High	Moderate
620:									
Swalesilver	---	---	---	---	0	---	Moderate	High	Moderate
621:									
Swalesilver	---	---	---	---	0	---	Moderate	High	Moderate
622:									
Teguro	Lithic bedrock	10-20	---	Very strongly cemented	0	---	Moderate	Low	Low
623:									
Teguro	Lithic bedrock	10-20	---	Very strongly cemented	0	---	Moderate	Low	Low
624:									
Thompsoncabin, extremely bouldery	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	High
Thompsoncabin	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	High
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
625:									
Thompsoncabin	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	High	High
Wildhill	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
626:									
Thornlake	---	---	---	---	0	---	Low	Moderate	Moderate
627:									
Thornlake, nonsodic surface	---	---	---	---	0	---	Low	Moderate	Moderate
628:									
Thornlake, strongly alkaline	---	---	---	---	0	---	Low	Moderate	Moderate
Thornlake, moderately alkaline	---	---	---	---	0	---	Low	Moderate	Moderate
629:									
Thornlake	---	---	---	---	0	---	Low	Moderate	Moderate
Catlow	---	---	---	---	0	---	Moderate	Moderate	Low
Kewake	---	---	---	---	0	---	Low	High	High
630:									
Thornlake	---	---	---	---	0	---	Low	Moderate	Moderate
Kewake	---	---	---	---	0	---	Low	High	High
631:									
Thornlake	---	---	---	---	0	---	Low	Moderate	Moderate
Morehouse	---	---	---	---	0	---	Low	High	High
632:									
Thornlake	---	---	---	---	0	---	Low	Moderate	Moderate
Salhouse	---	---	---	---	0	---	Low	High	Moderate
633:									
Thornlake, dunes	---	---	---	---	0	---	Low	Moderate	Moderate
Salhouse, dunes	---	---	---	---	0	---	Low	High	Moderate
634:									
Thornlake	---	---	---	---	0	---	Low	Moderate	Moderate
Salhouse	---	---	---	---	0	---	Low	High	Moderate

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
634:									
Fossilake	---	---	---	---	0	---	High	Moderate	High
635:									
Teguro	Lithic bedrock	10-20	---	Very strongly cemented	0	---	Moderate	Low	Low
Carryback	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	Low
636:									
Toll	---	---	---	---	0	---	Low	Moderate	Moderate
637:									
Toll	---	---	---	---	0	---	Low	Moderate	Moderate
Nevador	---	---	---	---	0	---	Moderate	Moderate	Moderate
638:									
Tonor	---	---	---	---	0	---	Low	Moderate	Moderate
639:									
Tuffcabin	Duripan	40-60	1-10	Moderately cemented	0	---	Low	Moderate	Moderate
640:									
Turpin	---	---	---	---	0	---	Moderate	High	High
641:									
Turpin	---	---	---	---	0	---	Moderate	High	High
642:									
Turpin	---	---	---	---	0	---	Moderate	High	High
Boravall	---	---	---	---	0	---	High	High	High
Playas	---	---	---	---	0	---	---	---	---
643:									
Turpin	---	---	---	---	0	---	Moderate	High	High
Kewake	---	---	---	---	0	---	Low	High	High
Playas	---	---	---	---	0	---	---	---	---
644:									
Turpin	---	---	---	---	0	---	Moderate	High	High

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
644:									
Playas	---	---	---	---	0	---	---	---	---
645:									
Turpin, saline	---	---	---	---	0	---	Moderate	High	High
Playas, saline	---	---	---	---	0	---	---	---	---
646:									
Turpin, sodic	---	---	---	---	0	---	Moderate	High	High
Playas, sodic	---	---	---	---	0	---	---	---	---
647:									
Turpin	---	---	---	---	0	---	Moderate	High	High
Rabbitcreek	---	---	---	---	0	---	Moderate	High	Moderate
648:									
Turpin	---	---	---	---	0	---	Moderate	High	High
Reese	---	---	---	---	0	---	High	High	High
649:									
Turpin	---	---	---	---	0	---	Moderate	High	High
Turpin, overblown	---	---	---	---	0	---	Moderate	High	High
650:									
Vitale	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
651:									
Wagontire	Duripan	14-20	15-30	Indurated	0	---	Low	Moderate	Low
652:									
Wanoga, south	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
653:									
Wanoga, south	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
654:									
Wanoga	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
Henkle	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
655:									
Wanoga	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
Henkle, cool	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
656:									
Wanoga, dry	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
Henkle, dry	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
657:									
Wanoga, moist	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
Henkle, moist	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
658:									
Wanoga	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Henkle	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
659:									
Wanoga, north	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
Henkle, north	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
660:									
Wanoga	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
Laidlaw	---	---	---	---	0	---	Moderate	Moderate	Low
661:									
Wanoga	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Moderate
Sisters	Lithic bedrock	40-80	---	Indurated	0	---	High	High	Low
663:									
Wegert	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
664:									
Wegert, cool	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
665:									
Wegert	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
666:									
Wegert	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Kunceider	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
667:									
Wegert, cool	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Kunceider, cool	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
668:									
Wegert, high precipitation	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Kunceider, high precipitation	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
669:									
Wegert	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Morehouse	---	---	---	---	0	---	Low	High	High
670:									
Weglike	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Jacksplace	Lithic bedrock	24-32	---	Indurated	0	---	Low	Moderate	Low
671:									
Weglike	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Suckerflat	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
672:									
Westbutte, north	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Lambring, north	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
673:									
Westbutte, north	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
673:									
Pernty, south	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Low	Low
674:									
Widowspring	---	---	---	---	0	---	Moderate	High	Low
675:									
Wildcatbutte	---	---	---	---	0	---	Low	Moderate	Moderate
Chesebro	---	---	---	---	0	---	Moderate	Moderate	Low
Glassbutte	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Moderate
676:									
Wildcatbutte, south	---	---	---	---	0	---	Low	Moderate	Moderate
Glencabin, north	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
677:									
Wildcatbutte, south	---	---	---	---	0	---	Low	Moderate	Moderate
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
678:									
Wildcatbutte	---	---	---	---	0	---	Low	Moderate	Moderate
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
679:									
Wildcatbutte	---	---	---	---	0	---	Low	Moderate	Moderate
Suckerflat, south	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
680:									
Winterim	Paralithic bedrock	40-60	---	Moderately cemented	0	---	Moderate	High	Low
681:									
Wiskan	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
681:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
682:									
Xerolls, north	Lithic bedrock	10-80	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
683:									
Xerolls, north	Lithic bedrock	10-80	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
684:									
Yankeewell	Duripan	10-20	5-15	Strongly cemented	0	---	Moderate	High	Moderate
	Lithic bedrock	18-26	---	Indurated					
685:									
Yankeewell	Duripan	10-20	5-15	Strongly cemented	0	---	Moderate	High	Moderate
	Lithic bedrock	18-26	---	Indurated					
Noidee	Lithic bedrock	14-20	---	Indurated	0	---	Low	High	High
686:									
Yapoah, north	---	---	---	---	0	---	High	Moderate	Low
687:									
Yapoah, south	---	---	---	---	0	---	High	Moderate	Low
688:									
Youtlkue	Paralithic bedrock	20-35	---	Moderately cemented	0	---	Low	Moderate	Low
689:									
Zorravista	---	---	---	---	0	---	Low	Low	Low
690:									
Zorravista	---	---	---	---	0	---	Low	Low	Low
Hinton	Strongly contrasting textural stratification	16-26	---	Noncemented	0	---	Low	High	Low
691:									
Lithic Haploxerolls	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low

Table 11.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
691: Lava flows	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
692: Steiger	---	---	---	---	0	---	Moderate	Moderate	Low
693: Steiger, high elevation	---	---	---	---	0	---	High	Moderate	Low
694: Steiger, low landscape position	---	---	---	---	0	---	Moderate	Moderate	Low
695: Ninemile, hummocky	Lithic bedrock	17-19	---	Indurated	0	---	Moderate	High	Low
696: Shanahan	---	---	---	---	0	---	Moderate	High	Low
888: Denied access	---	---	---	---	---	---	---	---	---
999: Water	---	---	---	---	---	---	---	---	---

Table 12.—Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Abert	Ashy, glassy, frigid Sodic Xeric Haplocambids
Actem	Clayey, smectitic, frigid, shallow Xeric Argidurids
Alyan	Fine, smectitic, frigid Aridic Argixerolls
Anawalt	Clayey, smectitic, frigid Lithic Xeric Haplargids
Arcia	Fine, smectitic, frigid Pachic Argixerolls
Arness	Loamy, mixed, superactive, frigid, shallow Argiduridic Durixerolls
Atlow	Loamy-skeletal, mixed, superactive, mesic Lithic Xeric Haplargids
Baconcamp	Loamy-skeletal, mixed, superactive Pachic Haplocryolls
Blackhills	Ashy-skeletal, glassy, mesic Lithic Haploxerolls
Bluesters	Ashy over pumiceous or cindery, glassy, frigid Humic Vitrixerands
Boilout	Ashy, glassy, mesic, shallow Vitrixerandic Argidurids
Bonnick	Ashy, glassy, frigid Vitritorrandic Haploxerolls
Booth	Fine, smectitic, frigid Vertic Palexerolls
Boravall	Fine, smectitic, calcareous, mesic Aeric Halaquepts
Borobey	Ashy, glassy, frigid Vitritorrandic Haploxerolls
Brabble	Fine-loamy, mixed, superactive, mesic Xeric Haplodurids
Brace	Fine-loamy, mixed, superactive, frigid Xeric Argidurids
Brezniak	Clayey, smectitic, mesic Lithic Argixerolls
*Bridgewell	Coarse-silty, mixed, superactive, frigid Vitrixerandic Aquicambids
Bridgewell	Ashy, glassy, calcareous, frigid Aquandic Endoaquolls
Bullump	Loamy-skeletal, mixed, superactive, frigid Pachic Argixerolls
Bunyard	Ashy, glassy, frigid Durinodic Natrargids
Cabinspring	Ashy-skeletal, glassy, frigid Vitritorrandic Argixerolls
Calderwood	Loamy-skeletal, mixed, superactive, mesic Lithic Xeric Haplocambids
Camptank	Clayey over loamy-skeletal, smectitic over mixed, superactive, frigid Xeric Paleargids
Carryback	Fine, smectitic, frigid Vertic Palexerolls
Carvix	Fine-loamy, mixed, superactive, frigid Aridic Haploxerolls
Catlow	Loamy-skeletal, mixed, superactive, mesic Durinodic Xeric Haplocambids
Catnapp	Fine, smectitic, frigid Xeric Natrargids
Chancelakes	Fine, smectitic, frigid Xeric Epiaquerts
*Chen	Loamy-skeletal, mixed, superactive, frigid Pachic Haploxerolls
Chen	Clayey-skeletal, smectitic, frigid Lithic Argixerolls
Chesebro	Ashy-skeletal, glassy, frigid Vitrandic Argixerolls
Chinarise	Ashy, glassy, frigid Vitrandic Haploxerolls
Cinderfall	Ashy-skeletal, glassy, frigid Vitritorrandic Haploxerolls
Clamp	Loamy-skeletal, mixed, superactive Lithic Haplocryolls
Cleavage	Loamy-skeletal, mixed, superactive, frigid Lithic Argixerolls
Cleet	Loamy-skeletal, mixed, superactive, mesic, shallow Xeric Argidurids
Clurde	Fine-loamy, mixed, superactive, mesic Durinodic Xeric Haplocambids
Connleyhills	Clayey-skeletal, smectitic, frigid Vitritorrandic Argixerolls
Cooperdraw	Loamy-skeletal, mixed, superactive, frigid Xeric Argidurids
Corral	Loamy, mixed, superactive, mesic, shallow Xeric Haplargids
Coztur	Loamy, mixed, superactive, frigid Lithic Xeric Haplargids
Crackedground	Ashy-skeletal, glassy, frigid Vitritorrandic Haploxerolls
Davey	Sandy, mixed, mesic Xeric Haplocambids
Deppy	Loamy, mixed, superactive, mesic, shallow Argidic Argidurids
Derallo	Ashy-skeletal, glassy, frigid Vitritorrandic Argixerolls
Deseed	Fine, smectitic, frigid Xeric Haplargids
Diablopeak	Clayey, smectitic, frigid Lithic Natrargids
Drakesflat	Fine, smectitic, frigid Calciargidic Argixerolls
Dunres	Clayey, smectitic, frigid, shallow Vitrandic Durixerolls
Edemaps	Fine, smectitic, frigid Argiduridic Durixerolls
Embal	Ashy, glassy, frigid Vitritorrandic Haploxerolls
Enko	Coarse-loamy, mixed, superactive, mesic Durinodic Xeric Haplocambids
Erakatak	Clayey-skeletal, smectitic, frigid Vitrandic Argixerolls
Felcher	Loamy-skeletal, mixed, superactive, mesic Xeric Haplocambids
Fertaline	Fine, smectitic, frigid Abruptic Xeric Argidurids
Firelake	Loamy, mixed, superactive, nonacid, mesic Lithic Xeric Torriorthents
Fitzwater	Loamy-skeletal, mixed, superactive, frigid Aridic Haploxerolls

Table 12.—Taxonomic Classification of the Soils—Continued

Soil name	Family or higher taxonomic class
*Flagstaff	Coarse-loamy, mixed, superactive, mesic Typic Haplosalids
Flagstaff	Ashy, glassy, frigid Typic Aquisalids
Foleylake	Fine, smectitic, frigid Abruptic Xeric Argidurids
Fort Rock	Ashy over sandy or sandy-skeletal, glassy over mixed, frigid Vitritorrandic Haploxerolls
Fossilake	Ashy, glassy, calcareous, frigid Aquandic Halaquepts
Freznik	Fine, smectitic, frigid Xeric Paleargids
Giranch	Ashy-skeletal, glassy, frigid Vitritorrandic Durixerolls
*Glassbutte	Ashy-skeletal over fragmental or cindery, glassy over mixed, frigid Vitritorrandic Haploxerolls
Glassbutte	Ashy-skeletal, glassy, frigid Vitritorrandic Argixerolls
*Glencabin	Ashy, glassy, frigid Vitrandic Haploxerolls
Glencabin	Ashy-skeletal, glassy, frigid Vitrandic Haploxerolls
Goodtack	Ashy, glassy, frigid, shallow Vitritorrandic Durixerolls
Gradon	Fine-loamy, mixed, superactive, frigid Argiduridic Durixerolls
Greenmountain	Ashy, glassy, frigid Vitritorrandic Durixerolls
Hackwood	Fine-loamy, mixed, superactive Pachic Haplocryolls
Hager	Fine-loamy, mixed, superactive, mesic Xeric Argidurids
*Hayespring	Ashy-skeletal, glassy, frigid Vitrandic Argixerolls
Hayespring	Fine-loamy, isotic, frigid Vitritorrandic Durixerolls
*Helphenstein	Ashy, glassy, mesic Vitrixerandic Aquicambids
Helphenstein	Fine-loamy, mixed, superactive, mesic Sodic Aquicambids
Henkle	Ashy-skeletal, glassy, frigid Lithic Vitrixerands
Hinton	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, nonacid, mesic Duric Torriorthents
Horning	Ashy, glassy, calcareous, frigid Vitrandic Torriorthents
Icene	Fine-loamy, mixed, superactive, mesic Typic Aquisalids
Ipsoot	Ashy over pumiceous or cindery, glassy Xeric Vitricryands
Jacksplace	Ashy-skeletal, glassy, frigid Vitritorrandic Argixerolls
Kewake	Mixed, mesic Vitrandic Torripsamments
Krackle	Loamy-skeletal, mixed, superactive Xeric Haplocryolls
Kunceider	Ashy-skeletal, glassy, frigid Lithic Haploxerolls
Laidlaw	Ashy, glassy, frigid Humic Vitrixerands
Lambring	Loamy-skeletal, mixed, superactive, frigid Pachic Haploxerolls
Lapham	Ashy over loamy-skeletal, glassy over isotic, frigid Vitritorrandic Haploxerolls
Lapine	Ashy-pumiceous, glassy Xeric Vitricryands
Lastcall	Ashy, glassy, frigid Vitritorrandic Argixerolls
*Leevan	Loamy-skeletal, mixed, superactive, frigid Xeric Haplocambids
Leevan	Clayey-skeletal, smectitic, frigid Typic Argixerolls
Legler	Fine-loamy, mixed, superactive, mesic Xeric Haplocambids
Lithic Haploxerolls	Ashy-skeletal, glassy, frigid Lithic Haploxerolls
Locane	Clayey-skeletal, smectitic, frigid Lithic Xeric Haplargids
Locolake	Loamy, mixed, superactive, frigid, shallow Typic Natridurids
Lostforest	Ashy, glassy, frigid Vitrixerandic Haplocambids
Ludi	Ashy-skeletal over fragmental or cindery, glassy over mixed, frigid Vitrandic Haploxerolls
*Lyeflat	Mixed, mesic Haploduridic Torripsamments
Lyeflat	Loamy, mixed, superactive, mesic Lithic Haplocambids
McConnel	Sandy-skeletal, mixed, mesic Xeric Haplocambids
McNye	Sandy-skeletal, mixed, mesic Xeric Haplocambids
Meld	Ashy, glassy, frigid Vitritorrandic Durixerolls
Menbo	Clayey-skeletal, smectitic, frigid Vitrandic Argixerolls
Merlin	Clayey, smectitic, frigid Lithic Argixerolls
Mesman	Fine-loamy, mixed, superactive, mesic Xeric Natrargids
Milcan	Ashy, glassy, frigid Vitritorrandic Durixerolls
Millenium	Ashy, glassy, frigid Vitritorrandic Argixerolls
Moonbeam	Clayey, smectitic, frigid, shallow Vitritorrandic Durixerolls
Morehouse	Ashy, glassy, nonacid, frigid Vitrandic Torripsamments
Morfitt	Fine-loamy, mixed, superactive, mesic Xeric Haplargids
Murlose	Ashy, glassy, frigid, shallow Vitrandic Durixerolls
Nevador	Fine-loamy, mixed, superactive, mesic Durinodic Xeric Haplargids
Ninemile	Clayey, smectitic, frigid Lithic Argixerolls
Noidee	Clayey, smectitic, frigid Lithic Xeric Natrargids

Table 12.—Taxonomic Classification of the Soils—Continued

Soil name	Family or higher taxonomic class
Norcross	Clayey, smectitic, frigid, shallow Vitrandic Durixerolls
*Nuss	Ashy-skeletal, glassy, frigid, shallow Vitrandic Haploxerolls
Nuss	Loamy, mixed, superactive, frigid Lithic Haploxerolls
Oatmanflat	Ashy, glassy, frigid Vitritorrandic Haploxerolls
Old Camp	Loamy-skeletal, mixed, superactive, mesic Lithic Xeric Haplargids
Oreneva	Loamy-skeletal, mixed, superactive, frigid Xeric Haplocambids
Osoll	Loamy-skeletal, mixed, superactive, mesic, shallow Typic Haplodurids
Overallflat	Ashy, glassy, frigid Aquic Paleargids
Ozamis	Fine-loamy, mixed, superactive, mesic Fluvaquentic Endoaquolls
Pait	Loamy-skeletal, mixed, superactive, mesic Aridic Haploxerolls
*Panlee	Loamy-skeletal, mixed, superactive, mesic Sodic Petrocambids
*Paulina	Ashy-skeletal, glassy, frigid Aquandic Endoaquolls
Paulina	Ashy, glassy, frigid Aquandic Endoaquolls
Pearlwise	Fine-loamy, mixed, superactive, frigid Pachic Haploxerolls
*Pernty	Ashy-skeletal, mixed, frigid Lithic Argixerolls
Pernty	Loamy-skeletal, mixed, superactive, frigid Lithic Argixerolls
Picturerock	Ashy, glassy, frigid Vitritorrandic Haploxerolls
*Pitcheranch	Fine-loamy, mixed, superactive, mesic Cumulic Endoaquolls
*Pitcheranch	Fine-loamy, mixed, superactive, calcareous, mesic Aquandic Endoaquepts
Pitcheranch	Ashy, glassy, nonacid, frigid Aquandic Endoaquepts
*Poorjug	Fine-loamy, mixed, superactive, mesic Lithic Xeric Haplocambids
Poorjug	Loamy-skeletal, mixed, superactive, mesic Lithic Xeric Haplocambids
*Porterfield	Ashy, glassy, calcareous, mesic, shallow Vitrandic Torriorthents
Puzzlebark	Ashy, glassy, frigid, shallow Vitrixerandic Haplodurids
Rabbitcreek	Fine-loamy, mixed, superactive, mesic Typic Haplocambids
*Rabbithills	Loamy, mixed, superactive, frigid, shallow Xereptic Haplodurids
Rabbithills	Loamy, mixed, superactive, mesic, shallow Xereptic Haplodurids
Ratto	Clayey, smectitic, frigid, shallow Xeric Argidurids
Raz	Loamy, mixed, superactive, frigid, shallow Xeric Haplodurids
Raztack	Fine, smectitic, frigid Vitrandic Palexeralfs
Reallis	Coarse-loamy, mixed, superactive, frigid Durinodic Xeric Haplocambids
Redcanyon	Loamy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls
Redcliff	Loamy-skeletal, mixed, superactive, mesic Aridic Haploxerolls
Reese	Fine-loamy, mixed, superactive, calcareous, mesic Duric Halaquepts
Reluctan	Fine-loamy, mixed, superactive, frigid Aridic Argixerolls
Riddleranch	Loamy-skeletal, mixed, superactive, frigid Aridic Haploxerolls
Rinconflat	Loamy-skeletal, mixed, superactive, frigid Xeric Haplocambids
Royst	Clayey-skeletal, smectitic, frigid Pachic Argixerolls
Sagehen	Loamy-skeletal, mixed, superactive, frigid Lithic Xeric Haplocambids
Salhouse	Ashy, glassy, calcareous, frigid Vitrandic Torripsamments
Sandrock	Ashy, glassy, frigid Lithic Xeric Haplargids
Seharney	Loamy-skeletal, mixed, superactive, frigid, shallow Xereptic Haplodurids
Senra	Ashy, glassy, frigid, shallow Vitritorrandic Durixerolls
Shanahan	Ashy over loamy, glassy over isotic Xeric Vitricryands
Shukash	Ashy over loamy-skeletal, glassy over isotic Xeric Vitricryands
Silverash	Fine, smectitic, frigid Aquandic Palexeralfs
Sisters	Ashy over loamy, glassy over mixed, superactive, frigid Humic Vitrixerands
Sliptrack	Ashy, glassy, frigid Vitritorrandic Durixerolls
Snakepit	Sandy, mixed, frigid Cambidic Durixerolls
Southcat	Sandy, mixed, mesic Sodic Haplocambids
Spiderhole	Loamy-skeletal, mixed, superactive, frigid, shallow Xeric Argidurids
Stampede	Fine, smectitic, frigid Vertic Durixerolls
Stauffer	Ashy, glassy, frigid Vitritorrandic Argixerolls
Steiger	Ashy, glassy Xeric Vitricryands
Suckerflat	Ashy, glassy, frigid Lithic Haploxerolls
Swalesilver	Fine, smectitic, frigid Aquic Palexeralfs
Teguro	Loamy, mixed, superactive, frigid Lithic Argixerolls
Thompsoncabin	Loamy-skeletal, mixed, superactive, mesic Lithic Natrargids
*Thornlake	Ashy, glassy, mesic Durinodic Xeric Haplocambids
Thornlake	Ashy, glassy, frigid Sodic Xeric Haplocambids
Toll	Mixed, mesic Xeric Torripsamments
Tonor	Ashy, glassy, frigid Sodic Xeric Haplocambids
Tuffcabin	Ashy, glassy, frigid Vitritorrandic Haploxerolls
Tumtum	Loamy, mixed, superactive, mesic, shallow Typic Argidurids

Table 12.—Taxonomic Classification of the Soils—Continued

Soil name	Family or higher taxonomic class
*Turpin	Sandy, mixed, mesic Sodic Xeric Haplocambids
Turpin	Fine-loamy, mixed, superactive, mesic Sodic Xeric Haplocambids
Vitale	Loamy-skeletal, mixed, superactive, frigid Typic Argixerolls
Wagontire	Clayey, smectitic, frigid, shallow Argiduridic Durixerolls
Wanoga	Ashy, glassy, frigid Humic Vitrixerands
Wegert	Ashy, glassy, frigid Vitritorrandic Haploxerolls
Weglike	Fine-loamy, mixed, superactive, frigid Vitritorrandic Haploxerolls
Westbutte	Loamy-skeletal, mixed, superactive, frigid Pachic Haploxerolls
Widowspring	Fine-silty, mixed, superactive, frigid Cumulic Haploxerolls
Wildcatbutte	Ashy-skeletal, glassy, frigid Vitritorrandic Haploxerolls
Wildhill	Loamy-skeletal, mixed, superactive, mesic Durinodic Xeric Haplargids
Winterim	Clayey-skeletal, smectitic, frigid Pachic Argixerolls
Wiskan	Loamy-skeletal, mixed, superactive, frigid Xeric Haplargids
Xeric Haplocambids	Xeric Haplocambids
Xerolls	Xerolls
Yankeewell	Loamy, mixed, superactive, frigid, shallow Xeric Natridurids
Yapoah	Ashy-skeletal, glassy, frigid Humic Vitrixerands
Youtlkue	Ashy, glassy, frigid Vitrixerandic Aquicambids
Zorravista	Mixed, mesic Xeric Torripsamments

Accessibility Statement

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers. If you believe you experienced discrimination when obtaining services from USDA, participating in a USDA program, or participating in a program that receives financial assistance from USDA, you may file a complaint with USDA. Information about how to file a discrimination complaint is available from the Office of the Assistant Secretary for Civil Rights. USDA prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.)

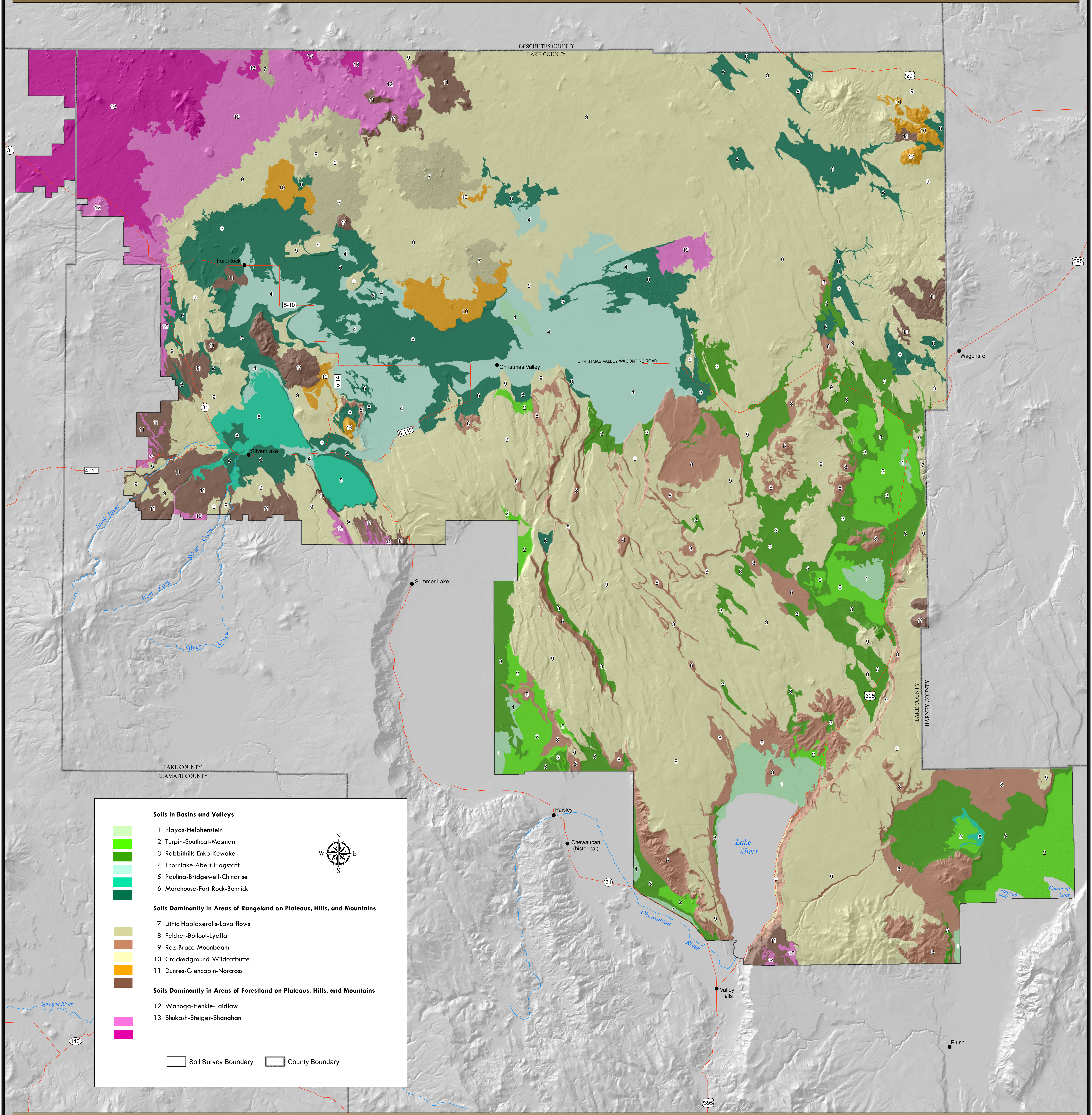
To file a complaint of discrimination, complete, sign, and mail a program discrimination complaint form, available at any USDA office location or online at www.ascr.usda.gov, or write to:

USDA
Office of the Assistant Secretary for Civil Rights
1400 Independence Avenue, SW.
Washington, DC 20250-9410

Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender.

Persons with disabilities who require alternative means for communication of program information (e.g., Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

General Soil Map
Lake County, Oregon, Northern Part, Parts of Lake and Klamath Counties



Soils in Basins and Valleys

1 Playas-Helphenstein
2 Turpin-Southcat-Mesman
3 Rabbithills-Enko-Kewake
4 Thornlake-Abert-Flagstaff
5 Paulina-Bridgewell-Chinarise
6 Morehouse-Fort Rock-Bonnick

Soils Dominantly in Areas of Rangeland on Plateaus, Hills, and Mountains

7 Lithic Haploxerolls-Lava flows
8 Felcher-Boilout-Lyeflat
9 Raz-Brace-Moonbeam
10 Crackedground-Wildcatbutte
11 Dunres-Glencabin-Norcross

Soils Dominantly in Areas of Forestland on Plateaus, Hills, and Mountains

12 Wanoga-Henkle-Laidlaw
13 Shukash-Steiger-Shanahan

☐ Soil Survey Boundary ☐ County Boundary

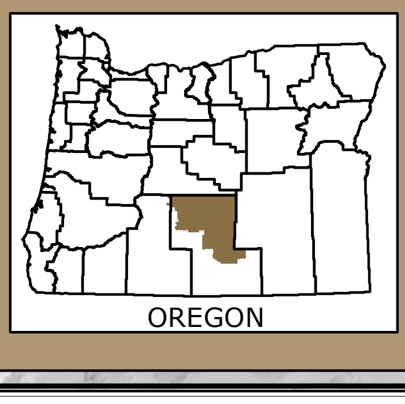
USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

United States Department of Agriculture, Forest Service
United States Department of the Interior, Bureau of Land Management
Oregon State University, Agricultural Experiment Station

Miles
0 5 10 15 20

Kilometers
0 5 10 15 20

This map was designed at 1:260,00 scale on a 24" x 29" layout.
1 in = 4 miles when printed without scaling at this size.

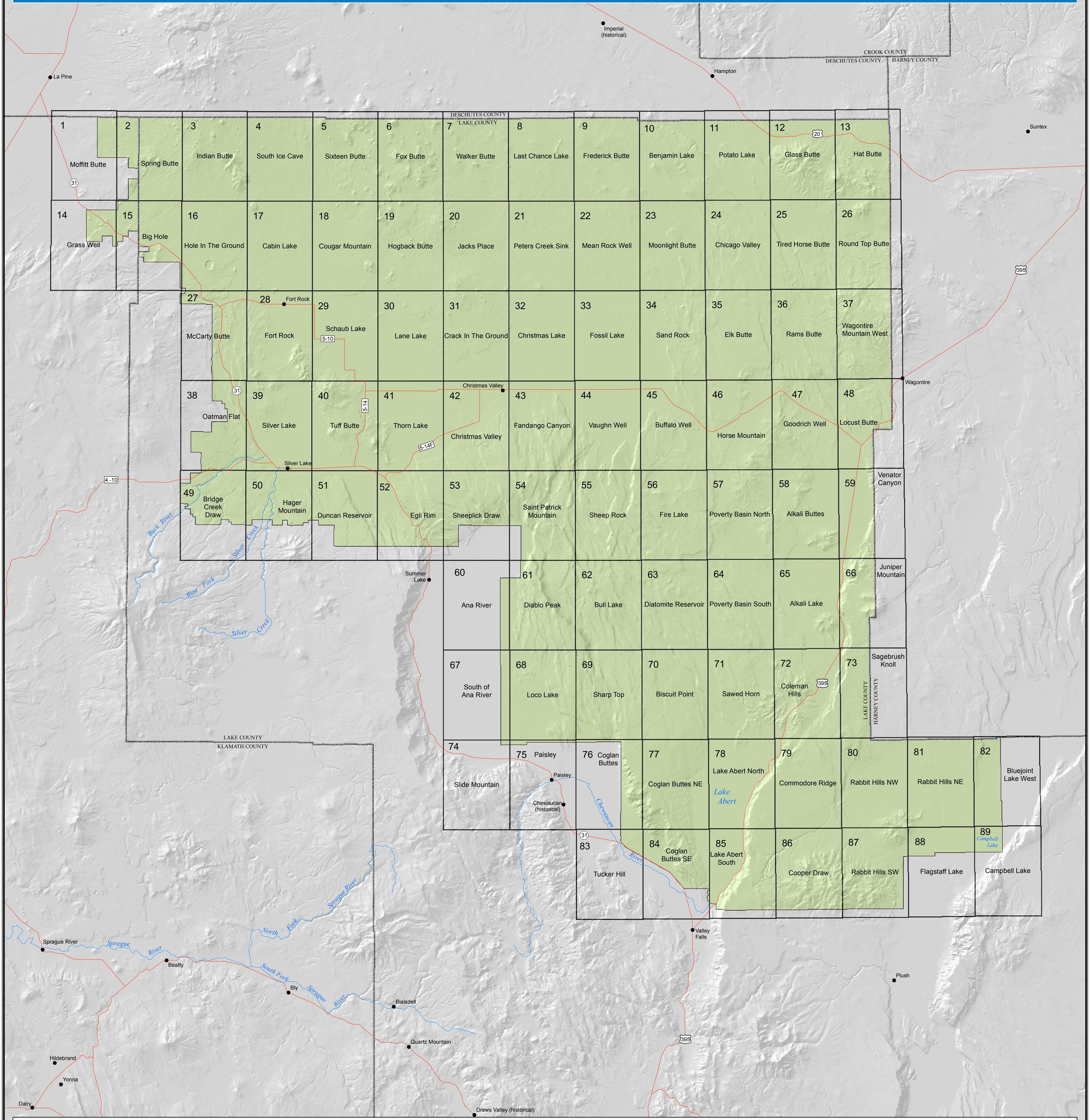


Sources:
Soil aggregations and polygon boundaries are provided by NRCS.
Shaded relief acquired from United States Geological Survey (USGS).
County Boundaries, cities, roads, and hydrography are provided by TeleAtlas Dynamap.

Prepared by the Pacific Northwest Soil Survey Regional Office (MO1) Portland, OR, 2012. All information is provided "as is" and without warranty, express or implied.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program.

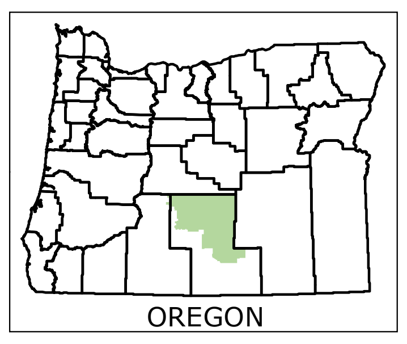
Index to Map Sheets
Lake County, Oregon, Northern Part,
Parts of Lake and Klamath Counties



United States Department of Agriculture, Forest Service
United States Department of the Interior, Bureau of Land Management
Oregon State University, Agricultural Experiment Station

Miles
0 5 10 15 20
Kilometers
0 5 10 15 20

This map was designed at 1:300,00 scale on a 24" x 29" layout.
1 in = 5 miles when printed without scaling at this size.



Sources:
Quadrangle boundaries (7.5') and shaded relief acquired from United States Geological Survey (USGS).
County Boundaries, cities, roads, and hydrography are derived from TeleAtlas Dynamap.

Prepared by the Pacific Northwest Soil Survey Regional Office (MO1)
Portland, OR, 2012.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART, PARTS OF LAKE AND KLAMATH COUNTIES

UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT
OREGON STATE UNIVERSITY, AGRICULTURAL EXPERIMENT STATION

SOIL LEGEND

200 Abert ashy loamy sand, 0 to 2 percent slopes
201 Actem cobbly loam, 2 to 20 percent slopes
202 Alyan gravelly sandy loam, 3 to 15 percent slopes
203 Anawalt gravelly clay loam, 0 to 12 percent slopes
204 Anawalt very gravelly loam, 2 to 10 percent slopes
205 Anawalt-Freznik complex, 1 to 5 percent slopes
206 Anawalt-Oreneva complex, 0 to 12 percent slopes
207 Anawalt-Raz complex, 2 to 10 percent slopes
208 Anawalt-Rock outcrop complex, 2 to 15 percent slopes
209 Atlow-Rock outcrop complex, 20 to 50 percent slopes

210 Baconcamp-Clamp complex, 5 to 20 percent slopes
211 Baconcamp-Rock outcrop complex, 3 to 30 percent slopes
212 Bluesters gravelly ashy loamy sand, 15 to 50 percent slopes
213 Bluesters gravelly ashy loamy sand, dry, 15 to 50 percent slopes
214 Boilout cobbly ashy fine sandy loam, 2 to 10 percent slopes
215 Bonnick gravelly ashy loamy sand, 1 to 5 percent slopes
216 Bonnick gravelly ashy sandy loam, 0 to 15 percent slopes
217 Bonnick-Fort Rock complex, 0 to 2 percent slopes
218 Bonnick-Fort Rock complex, 1 to 8 percent slopes
219 Bonnick-Fort Rock complex, low precipitation, 1 to 8 percent slopes
220 Bonnick-Kunceider complex, 1 to 10 percent slopes
221 Bonnick-Morehouse complex, 0 to 10 percent slopes
222 Booth very stony loam, 2 to 15 percent slopes
223 Booth-Rock outcrop complex, 2 to 15 percent slopes
224 Borobey ashy fine sandy loam, 0 to 5 percent slopes
225 Borobey ashy loamy sand, 0 to 5 percent slopes
226 Borobey ashy sandy loam, 2 to 15 percent slopes
227 Borobey-Morehouse complex, 0 to 20 percent slopes
228 Borobey-Oatmanflat ashy sandy loams, 1 to 5 percent slopes
229 Borobey-Overallflat complex, 0 to 2 percent slopes
230 Brabble-Calderwood complex, 5 to 25 percent slopes
231 Brace-Foleylake complex, 2 to 15 percent slopes
232 Bridgewell ashy loam, 0 to 2 percent slopes
233 Bridgewell ashy sandy loam, 0 to 2 percent slopes
234 Bullump-Rock outcrop-Nuss complex, 20 to 70 percent south slopes
236 Bunyard ashy silt loam, 0 to 1 percent slopes

237 Cabinspring-Chesebro-Hayespring complex, 20 to 50 percent slopes
238 Calderwood-McConnel complex, 0 to 20 percent slopes
239 Carryback very cobbly loam, 2 to 15 percent slopes, eroded
240 Carryback very stony clay loam, 2 to 20 percent slopes
241 Carryback-Pearlwise complex, 3 to 15 percent slopes
242 Carvix silt loam, 0 to 5 percent slopes
243 Catlow gravelly sandy loam, 2 to 12 percent slopes
244 Catlow-Davey complex, 2 to 30 percent slopes
245 Catnapp extremely cobbly loam, 2 to 15 percent slopes
246 Chancelakes-Silverash complex, 0 to 1 percent slopes
247 Chen-Erakatak-Lambring complex, 15 to 50 percent slopes
248 Chesebro-Rock outcrop complex, 20 to 65 percent slopes
249 Cinderfall-Fort Rock-Kunceider complex, 1 to 8 percent slopes
250 Cleavage-Ninemile-Westbutte complex, 2 to 15 percent slopes
251 Cleet very gravelly sandy loam, 2 to 15 percent slopes
252 Clurde loam, 0 to 6 percent slopes
253 Clurde-Toll complex, 0 to 12 percent slopes
254 Connleyhills ashy coarse sandy loam, 2 to 15 percent slopes
255 Connleyhills cobbly ashy loam, 2 to 20 percent slopes
256 Cooperdraw-Fertaline complex, 1 to 5 percent slopes
257 Corral fine sandy loam, low precipitation, 2 to 15 percent slopes
258 Coztur sandy loam, 2 to 15 percent slopes
259 Crackedground cobbly ashy loamy sand, 1 to 5 percent slopes
260 Crackedground cobbly ashy loamy sand, 1 to 6 percent slopes
261 Crackedground-Kunceider complex, 1 to 5 percent slopes
262 Crackedground-Milcan complex, 1 to 5 percent slopes
263 Crackedground-Milcan-Rock outcrop complex, 1 to 5 percent slopes
264 Crackedground-Wegert complex, 1 to 15 percent slopes

266 Deppy-Rubble land complex, 30 to 50 percent slopes
267 Deppy-Tumtum complex, 5 to 15 percent slopes
268 Derallo-Chesebro association, 15 to 35 percent slopes
269 Derallo-Rock outcrop complex, 15 to 50 percent slopes
270 Derallo-Rock outcrop complex, 20 to 60 percent south slopes
271 Diablopeak-Yankeewell complex, 2 to 20 percent slopes
272 Drakesflat loam, 15 to 30 percent slopes
273 Drakesflat loam, 2 to 15 percent slopes
274 Dune land, 5 to 50 percent slopes
275 Dune land-Fossilake-Salhouse complex, 0 to 30 percent slopes
276 Dune land-Morehouse complex, 1 to 10 percent slopes
277 Dune land-Salhouse complex, 2 to 35 percent slopes
278 Dunres cobbly ashy sandy loam, 1 to 15 percent slopes
279 Dunres cobbly ashy sandy loam, thick surface, 1 to 8 percent slopes
280 Dunres stony ashy fine sandy loam, 1 to 6 percent slopes
281 Dunres-Henkle complex, 2 to 20 percent slopes
282 Dunres-Moonbeam complex, 1 to 8 percent slopes
283 Dunres-Moonbeam-Nuss complex, 1 to 20 percent slopes
284 Dunres-Murlose-Nuss complex, 1 to 20 percent slopes
285 Dunres-Moonbeam complex, 2 to 20 percent slopes
286 Dunres-Norcross complex, 1 to 8 percent slopes

287 Edemaps-Pernty-Rock outcrop complex, 2 to 20 percent slopes
288 Embal ashy sandy loam, 0 to 3 percent slopes
289 Embal-Paulina complex, 0 to 2 percent slopes
290 Enko sandy loam, 0 to 6 percent slopes
291 Enko loam, 1 to 10 percent slopes
292 Enko loamy sand, 2 to 8 percent slopes
293 Enko-Catlow complex, 7 to 15 percent slopes
294 Enko-McConnel complex, 0 to 5 percent slopes
295 Erakatak cobbly clay loam, moist, 5 to 20 percent slopes
296 Erakatak-Carryback complex, 15 to 30 percent slopes
297 Erakatak-Leevan-Rock outcrop complex, 20 to 50 percent slopes
298 Erakatak-Rock outcrop complex, 20 to 60 percent south slopes
299 Erakatak-Rubble land complex, 30 to 70 percent slopes

300 Felcher-Camptank-Rock outcrop complex, 15 to 45 percent slopes
301 Felcher-Fitzwater-Rock outcrop complex, 20 to 60 percent slopes
302 Felcher-Oreneva-Rock outcrop complex, 20 to 60 percent slopes
303 Felcher-Riddleranch-Rock outcrop complex, 20 to 60 percent slopes
304 Felcher-Rock outcrop complex, 15 to 45 percent south slopes
305 Felcher-Rock outcrop complex, 20 to 65 percent slopes
306 Felcher-Rock outcrop complex, 40 to 70 percent slopes
307 Felcher-Rock outcrop-Brezniak complex, 30 to 65 percent south slopes
308 Felcher-Rock outcrop-Westbutte complex, 20 to 40 percent slopes
309 Firelake-Enko complex, 1 to 20 percent slopes
310 Fitzwater extremely stony loam, 30 to 50 percent south slopes
311 Fitzwater-Rock outcrop complex, 20 to 60 percent north slopes
312 Flagstaff loamy sand, 1 to 8 percent slopes
313 Flagstaff complex, 0 to 1 percent slopes
314 Flagstaff-Playas complex, 0 to 1 percent slopes
315 Flagstaff-Salhouse complex, 0 to 20 percent slopes
316 Foleylake-Anawalt complex, 1 to 5 percent slopes
317 Fort Rock ashy sandy loam, 0 to 2 percent slopes
318 Fort Rock gravelly ashy sandy loam, 1 to 8 percent slopes
319 Fort Rock-Bonnick complex, 0 to 2 percent slopes
320 Fort Rock-Lapham complex, 0 to 2 percent slopes
321 Fort Rock-Lapham complex, warm, 0 to 10 percent slopes
322 Fort Rock-Morehouse complex, 0 to 2 percent slopes
323 Fort Rock-Morehouse complex, 1 to 5 percent slopes
324 Fort Rock-Morehouse complex, moist, 0 to 8 percent slopes
325 Fort Rock-Suckerflat complex, 0 to 8 percent slopes
326 Fossilake ashy fine sandy loam, 0 to 1 percent slopes
327 Fossilake-Salhouse complex, cool, 0 to 20 percent slopes
328 Giranch-Meld complex, 2 to 15 percent slopes
329 Glencabin gravelly ashy loam, 15 to 30 percent south slopes
330 Glencabin gravelly ashy loam, 30 to 65 percent north slopes
331 Glencabin gravelly ashy loam, 30 to 65 percent south slopes
332 Glencabin complex, dry, 15 to 35 percent slopes
333 Glencabin-Rock outcrop complex, 15 to 65 percent slopes
334 Glencabin-Rock outcrop complex, moist, 15 to 40 percent slopes
335 Glencabin-Wanoga complex, 15 to 35 percent slopes
336 Glencabin-Yapoah-Rock outcrop complex, 15 to 50 percent slopes
338 Goodtack ashy very fine sandy loam, 2 to 10 percent slopes
339 Goodtack ashy very fine sandy loam, low precipitation, 1 to 5 percent slopes
340 Goodtack-Borobey complex, 0 to 10 percent slopes
341 Goodtack-Borobey complex, 1 to 5 percent slopes
342 Goodtack-Morehouse complex, 1 to 15 percent slopes
343 Goodtack-Sliptrack complex, 1 to 8 percent slopes
344 Gradon gravelly fine sandy loam, 0 to 8 percent slopes
345 Greenmountain gravelly ashy sandy loam, 1 to 8 percent slopes
346 Greenmountain-Jacksplace complex, 2 to 15 percent slopes
347 Greenmountain-Lastcall complex, 1 to 15 percent slopes
348 Greenmountain-Weglike complex, 2 to 10 percent slopes

349 Hackwood-Westbutte complex, 15 to 35 percent slopes
350 Hager complex, 2 to 15 percent slopes
351 Hayespring ashy loamy fine sand, 1 to 5 percent slopes
352 Hayespring-Dunres complex, 1 to 8 percent slopes
353 Hayespring-Moonbeam complex, 1 to 6 percent slopes
354 Hayespring-Moonbeam complex, 2 to 20 percent slopes
355 Hayespring-Moonbeam complex, cobbly, 2 to 15 percent slopes
356 Hayespring-Moonbeam complex, low precipitation, 1 to 8 percent slopes
357 Hayespring-Senra complex, 1 to 6 percent slopes
358 Helphenstein silt loam, 0 to 2 percent slopes
359 Helphenstein silt loam, frequently ponded, 0 to 2 percent slopes
360 Helphenstein very channery loam, 0 to 4 percent slopes
361 Helphenstein-Kewake complex, 0 to 45 percent slopes
362 Helphenstein-Legler-Playas complex, 0 to 5 percent slopes
363 Helphenstein-Pitcheranch-Reese complex, 0 to 2 percent slopes
364 Helphenstein-Turpin-Kewake complex, 0 to 15 percent slopes
365 Henkle-Ludi complex, 20 to 40 percent slopes
366 Henkle-Wanoga complex, 1 to 15 percent slopes
367 Henkle-Wanoga complex, dry, 10 to 30 percent slopes
368 Horning ashy loamy sand, 2 to 20 percent slopes
369 Horning-Tonor complex, 0 to 3 percent slopes

370 Icene-Playas complex, 0 to 1 percent slopes
371 Ipsoot very paragravelly ashy loamy coarse sand, 15 to 65 percent slopes
372 Ipsoot very paragravelly ashy loamy coarse sand, 30 to 65 percent north slopes
373 Ipsoot very paragravelly ashy loamy coarse sand, 30 to 65 percent south slopes

374 Jacksplace ashy fine sandy loam, moist, 2 to 15 percent slopes
375 Jacksplace ashy loamy sand, 1 to 6 percent slopes
376 Jacksplace cobbly ashy very fine sandy loam, 2 to 15 percent slopes
377 Jacksplace stony ashy loamy fine sand, 2 to 15 percent slopes
378 Jacksplace-Derallo-Glencabin complex, 5 to 60 percent slopes
379 Jacksplace-Senra complex, 5 to 15 percent slopes

380 Kewake loamy sand, 2 to 45 percent slopes
382 Kewake-Helphenstein complex, 0 to 25 percent slopes
383 Kewake-Helphenstein, dry, complex, 0 to 25 percent slopes
384 Kewake-Icene complex, 0 to 15 percent slopes
385 Kewake-Ozamis-Reese complex, 0 to 15 percent slopes
386 Kewake-Turpin complex, 0 to 45 percent slopes
387 Kewake-Turpin complex, sodic, 0 to 45 percent slopes
388 Krackle complex, 20 to 40 percent slopes
389 Kunceider cobbly ashy loamy sand, 0 to 15 percent slopes
390 Kunceider-Fort Rock complex, 1 to 5 percent slopes
391 Kunceider-Rock outcrop complex, 0 to 15 percent slopes
392 Kunceider-Wegert complex, 1 to 15 percent slopes

393 Laidlaw ashy loamy coarse sand, 5 to 15 percent slopes
394 Laidlaw ashy loamy sand, 15 to 40 percent slopes
395 Laidlaw-Wanoga complex, dry, 0 to 3 percent slopes
397 Lapham gravelly ashy loamy sand, 0 to 8 percent slopes
398 Lapine paragravelly ashy loamy coarse sand, 15 to 30 percent north slopes
399 Lapine paragravelly ashy loamy coarse sand, 0 to 15 percent slopes
400 Lapine paragravelly ashy loamy coarse sand, low landscape position, 0 to 3 percent slopes
401 Lastcall ashy sandy loam, 1 to 8 percent slopes
402 Lastcall complex, 1 to 10 percent slopes
403 Lastcall-Hayespring complex, 0 to 8 percent slopes
404 Lastcall-Hayespring complex, 1 to 5 percent slopes
405 Lastcall-Jacksplace-Embal complex, 1 to 5 percent slopes
407 Lastcall-Moonbeam complex, 1 to 10 percent slopes
408 Leevan-Fitzwater-Chen complex, 20 to 60 percent slopes
409 Leevan-Lambring-Rock outcrop complex, 20 to 60 percent slopes
410 Legler clay loam, 0 to 2 percent slopes
411 Bridgewell-Legler complex, 0 to 3 percent slopes
412 Bridgewell-Chancelakes association, 0 to 2 percent slopes
413 Lithic Haploxerolls-Lava flows complex, cool, 2 to 15 percent slopes
414 Lithic Haploxerolls-Lava flows complex, dry, 2 to 15 percent slopes
415 Locane cobbly clay loam, 2 to 8 percent slopes
416 Locane-Anawalt complex, 2 to 15 percent slopes
417 Locane-Deseed complex, 2 to 20 percent slopes
418 Locolake extremely cobbly sandy loam, 2 to 15 percent slopes
419 Locolake-McConnel complex, 3 to 10 percent slopes
420 Lostforest-Sandrock-Morehouse complex, 0 to 10 percent slopes
422 Ludi gravelly ashy fine sandy loam, 15 to 35 percent south slopes
423 Ludi gravelly ashy sandy loam, low precipitation, 15 to 30 percent north slopes
424 Ludi gravelly ashy sandy loam, low precipitation, 15 to 30 percent south slopes
425 Ludi gravelly ashy sandy loam, low precipitation, 15 to 50 percent north slopes
426 Ludi gravelly ashy loam, low precipitation, 30 to 50 percent south slopes
427 Ludi very gravelly ashy sandy loam, 15 to 35 percent slopes
428 Ludi-Glassbutte-Ludi, north complex, 15 to 50 percent slopes
429 Ludi-Glassbutte complex, 15 to 50 percent slopes
430 Lyeflat ashy coarse sand, 1 to 5 percent slopes
431 Lyeflat very gravelly very fine sandy loam, 20 to 50 percent slopes
432 Lyeflat-Lyeflat, very cobbly-Rock outcrop complex, 2 to 50 percent slopes
433 Lyeflat-Rock outcrop complex, 2 to 20 percent slopes

434 McConnel cobbly sandy loam, 3 to 8 percent slopes
435 McConnel gravelly sandy loam, sodic substratum, 0 to 5 percent slopes
436 McConnel very gravelly sandy loam, 0 to 2 percent slopes
437 McConnel very gravelly sandy loam, 2 to 15 percent slopes
438 McConnel-Davey complex, 15 to 45 percent slopes
439 McConnel-Poorjug complex, 1 to 15 percent slopes
440 McConnel-Turpin complex, 2 to 15 percent slopes
441 McNye-Wildhill-Rock outcrop complex, 20 to 50 percent slopes
442 Meld-Giranch complex, 2 to 20 percent slopes
443 Menbo stony loam, dry, 5 to 25 percent slopes
444 Merlin extremely stony loam, 0 to 15 percent slopes
445 Mesman fine sandy loam, 0 to 5 percent slopes
446 Mesman fine sandy loam, slightly alkaline, 0 to 5 percent slopes
447 Mesman-McConnel-Kewake complex, 2 to 8 percent slopes
448 Milcan ashy loamy sand, 1 to 5 percent slopes
449 Milcan-Jacksplace-Rock outcrop complex, 1 to 15 percent slopes
450 Millenium ashy silt loam, 0 to 2 percent slopes
451 Millenium ashy silt loam, basin floor, 0 to 2 percent slopes
452 Millenium-Stauffer-Raztack complex, 0 to 2 percent slopes
455 Moonbeam cobbly ashy fine sandy loam, 1 to 5 percent slopes
456 Moonbeam cobbly ashy loam, 2 to 15 percent slopes
457 Moonbeam extremely cobbly ashy loam, 1 to 8 percent slopes
458 Moonbeam very gravelly ashy loam, 1 to 12 percent slopes
459 Moonbeam very cobbly ashy loam, 1 to 8 percent slopes
460 Moonbeam very cobbly ashy loam, 0 to 15 percent slopes
461 Moonbeam-Connleyhills complex, 1 to 8 percent slopes
462 Moonbeam-Goodtack complex, 1 to 10 percent slopes
463 Moonbeam-Goodtack complex, 1 to 8 percent slopes
464 Moonbeam-Hayespring complex, 2 to 8 percent slopes
465 Moonbeam-Hayespring complex, moist, 2 to 12 percent slopes
466 Moonbeam-Meld complex, 2 to 8 percent slopes
467 Moonbeam-Senra complex, 2 to 20 percent slopes
468 Moonbeam-Senra complex, gravelly, 1 to 5 percent slopes
469 Moonbeam-Senra-Hayespring complex, 1 to 8 percent slopes
470 Morehouse ashy loamy fine sand, 0 to 2 percent slopes
471 Morehouse ashy loamy fine sand, 1 to 15 percent slopes
472 Morehouse ashy loamy fine sand, 2 to 20 percent slopes
473 Morehouse ashy loamy fine sand, high precipitation, 15 to 35 percent slopes
474 Morehouse complex, 1 to 20 percent slopes
475 Morehouse-Playas complex, 0 to 2 percent slopes
476 Morfitt loam, 0 to 2 percent slopes
477 Murlose cobbly ashy loam, 2 to 20 percent slopes
478 Murlose gravelly ashy coarse sandy loam, 1 to 6 percent slopes

479 Ninemile very cobbly loam, 2 to 15 percent slopes
480 Ninemile very cobbly loam, low precipitation, 2 to 15 percent slopes
481 Ninemile-Arcia complex, 2 to 15 percent slopes
482 Ninemile-Carvix complex, 0 to 8 percent slopes
483 Ninemile-Edemaps complex, 2 to 10 percent slopes
484 Ninemile-Reluctan complex, 0 to 15 percent slopes
485 Ninemile-Reluctan-Rubble land complex, 2 to 30 percent slopes
486 Ninemile-Rock outcrop-Felcher complex, 15 to 35 percent slopes
487 Ninemile-Westbutte complex, 2 to 15 percent slopes
488 Ninemile-Westbutte-Ninemile extremely stony complex, 2 to 30 percent slopes
489 Noidee very stony fine sandy loam, 2 to 15 percent slopes
490 Norcross complex, 1 to 4 percent slopes
491 Norcross extremely cobbly ashy loam, 1 to 8 percent slopes
492 Norcross gravelly ashy loam, 1 to 15 percent slopes

493 Oatmanflat ashy very fine sandy loam, 0 to 2 percent slopes
494 Oatmanflat-Borobey ashy very fine sandy loams, 0 to 2 percent slopes
495 Old Camp very cobbly loam, 2 to 15 percent slopes
496 Old Camp very cobbly loam, 30 to 50 percent south slopes
497 Old Camp-Felcher-Rock outcrop complex, 15 to 50 percent slopes
498 Osoll-Panlee-Rock outcrop complex, 20 to 50 percent slopes
499 Overallflat ashy very fine sandy loam, 0 to 2 percent slopes
500 Overallflat ashy very fine sandy loam, pluvial lake, 0 to 2 percent slopes
501 Overallflat-Morehouse complex, 0 to 5 percent slopes
502 Overallflat-Silverash complex, 0 to 1 percent slopes
503 Overallflat, hummocky-Silverash complex, 0 to 2 percent slopes
504 Ozamis silty clay, saline, 0 to 1 percent slopes
505 Ozamis-Reese complex, 0 to 1 percent slopes

506 Pait very cobbly loam, 5 to 30 percent slopes
507 Paulina ashy silty clay loam, 0 to 1 percent slopes
508 Paulina ashy silty clay loam, very gravelly substratum, 0 to 1 percent slopes
509 Paulina-Chinarise complex, 0 to 4 percent slopes
511 Pernty gravelly silt loam, 3 to 15 percent slopes
512 Pernty-Chesebro-Rock outcrop complex, 15 to 30 percent slopes
513 Pernty-Cleavage complex, 5 to 15 percent slopes
514 Pernty-Glencabin-Rock outcrop complex, 15 to 45 percent slopes
516 Pernty-Westbutte-Ninemile association, 5 to 50 percent slopes
517 Picturerock ashy loam, 1 to 3 percent slopes
518 Pitcheranch silt loam, 0 to 1 percent slopes
519 Pitcheranch-Chinarise complex, 0 to 4 percent slopes
520 Playas
521 Playas, saline
522 Playas-Helphenstein complex, 0 to 2 percent slopes
523 Poorjug complex, 0 to 10 percent slopes
524 Poorjug-Rock outcrop complex, 2 to 15 percent slopes
525 Porterfield-Rock outcrop complex, 2 to 20 percent slopes
526 Puzzlebark-Morehouse-Morehouse, gently sloping complex, 2 to 25 percent slopes
527 Puzzlebark-Sandrock complex, 0 to 5 percent slopes

528 Rabbithills complex, 0 to 10 percent slopes
529 Rabbithills complex, basin, 0 to 10 percent slopes
530 Rabbithills gravelly loamy sand, 0 to 5 percent slopes
531 Rabbithills gravelly sandy loam, sodic, 0 to 6 percent slopes
532 Rabbithills gravelly loam, 2 to 20 percent slopes
533 Rabbithills very gravelly loamy sand, 2 to 15 percent slopes
534 Rabbithills-Helphenstein complex, 0 to 10 percent slopes
535 Ratto very cobbly loam, 2 to 15 percent slopes
536 Raz cobbly fine sandy loam, overblown, 1 to 10 percent slopes
537 Raz-Brace complex, 2 to 10 percent slopes
538 Raz-Brace complex, high precipitation, 2 to 20 percent slopes
539 Raz-Brace complex, low precipitation, 2 to 20 percent slopes
540 Raz-Brace complex, overblown, 2 to 20 percent slopes
541 Raz-Poorjug complex, 2 to 15 percent slopes
542 Raz-Reallis association, 1 to 4 percent slopes
543 Raztack-Silverash-Embal complex, 0 to 1 percent slopes
544 Reallis fine sandy loam, 0 to 3 percent slopes
545 Reallis loamy sand, 0 to 2 percent slopes
546 Reallis complex, 0 to 4 percent slopes
547 Reallis-Yankeewell complex, 2 to 8 percent slopes
548 Redcanyon-Rock outcrop complex, 30 to 50 percent north slopes
549 Redcanyon-Rock outcrop complex, 30 to 50 percent south slopes
550 Redcliff-Rock outcrop complex, 30 to 65 percent south slopes
551 Reese-Ozamis complex, 0 to 1 percent slopes
552 Reluctan loam, 2 to 20 percent slopes
553 Reluctan-Arness complex, 2 to 20 percent slopes
554 Riddleranch stony loam, 15 to 40 percent north slopes
555 Riddleranch very gravelly loam, 30 to 50 percent north slopes
556 Riddleranch-Lambring-Rock outcrop complex, 20 to 50 percent slopes
557 Rinconflat stony loam, 3 to 10 percent slopes
558 Rock outcrop and Rubble land, 20 to 60 percent slopes
559 Rock outcrop-Blackhills complex, 15 to 35 percent slopes
560 Rock outcrop-Blackhills-Glencabin complex, 15 to 55 percent slopes
561 Rock outcrop-Felcher association, 30 to 70 percent south slopes
562 Rock outcrop-Shukash complex, 15 to 50 percent slopes
563 Rock outcrop-Xeric Haplocambids complex, 20 to 60 percent slopes
564 Rock outcrop-Xeric Haplocambids-Rubble land complex, 50 to 90 percent slopes
565 Rock outcrop-Xerolls complex, 20 to 60 percent south slopes
566 Royst very cobbly loam, 2 to 15 percent slopes
567 Royst-Ninemile complex, 2 to 8 percent slopes
568 Royst-Nuss complex, 2 to 30 percent slopes

569 Sagehen very gravelly loam, 0 to 5 percent slopes
570 Sagehen-Raz complex, 2 to 20 percent slopes
571 Salhouse ashy loamy fine sand, 3 to 15 percent slopes
572 Salhouse ashy loamy fine sand, strongly alkaline, 2 to 20 percent slopes
573 Salhouse-Tonor complex, 0 to 15 percent slopes
574 Seharney very stony sandy loam, 10 to 20 percent slopes
575 Seharney-Rabbithills-Enko complex, 1 to 20 percent slopes
576 Senra ashy fine sandy loam, 0 to 5 percent slopes
577 Senra ashy fine sandy loam, 1 to 12 percent slopes
578 Senra-Borobey complex, 0 to 2 percent slopes
579 Senra-Dunres complex, 1 to 8 percent slopes
580 Senra-Goodtack complex, 2 to 10 percent slopes
581 Senra-Goodtack complex, 2 to 20 percent slopes
582 Senra-Goodtack-Suckerflat complex, 1 to 4 percent slopes
583 Senra-Hayespring complex, 1 to 8 percent slopes
584 Senra-Hayespring complex, droughty, 2 to 10 percent slopes
585 Senra-Moonbeam complex, 2 to 15 percent slopes
586 Shanahan paragravelly ashy loamy coarse sand, cool, 0 to 1 percent slopes
587 Shanahan paragravelly ashy loamy coarse sand, low landscape position, 0 to 1 percent slopes
588 Shanahan-Shukash complex, 0 to 3 percent slopes
589 Shukash paragravelly ashy loamy coarse sand, 0 to 8 percent slopes
590 Shukash paragravelly ashy loamy coarse sand, cool, 0 to 3 percent slopes
591 Shukash-Rock outcrop complex, 15 to 65 percent north slopes
592 Shukash-Rock outcrop complex, 15 to 65 percent south slopes
593 Shukash-Rock outcrop complex, 3 to 15 percent slopes
594 Shukash-Rock outcrop complex, cold, 3 to 15 percent slopes
595 Shukash-Rock outcrop complex, high elevation, 3 to 15 percent slopes
596 Shukash-Shanahan complex, 0 to 3 percent slopes
597 Shukash-Wanoga-Rock outcrop complex, 0 to 15 percent slopes
598 Sisters-Wanoga complex, 0 to 3 percent slopes
599 Sliptrack-Moonbeam complex, 1 to 6 percent slopes
600 Sliptrack-Oatmanflat complex, 0 to 4 percent slopes
601 Snakepit loamy sand, 0 to 3 percent slopes
602 Southcat gravelly loamy sand, 0 to 10 percent slopes
603 Southcat-Kewake complex, 1 to 15 percent slopes
604 Southcat-Playas complex, 0 to 5 percent slopes
605 Spiderhole complex, 2 to 15 percent slopes
606 Stampede gravelly fine sandy loam, 1 to 5 percent slopes
607 Steiger ashy loamy coarse sand, 0 to 3 percent slopes
608 Steiger ashy loamy coarse sand, cool, 0 to 3 percent slopes
609 Steiger ashy loamy coarse sand, 3 to 15 percent slopes
610 Steiger-Rock outcrop complex, 30 to 65 percent north slopes
611 Steiger-Rock outcrop complex, 30 to 65 percent south slopes
612 Suckerflat ashy loamy fine sand, 2 to 15 percent slopes
613 Suckerflat ashy loamy sand, 0 to 8 percent slopes
614 Suckerflat cobbly ashy loam, 2 to 10 percent slopes
615 Suckerflat-Rock outcrop complex, 15 to 40 percent north slopes
616 Suckerflat-Rock outcrop complex, 15 to 40 percent south slopes
617 Suckerflat-Rock outcrop complex, 8 to 15 percent slopes
618 Suckerflat-Weglike complex, 2 to 6 percent slopes
619 Silverash ashy fine sandy loam, 0 to 1 percent slopes
620 Swalesilver loam, 0 to 1 percent slopes
621 Swalesilver silt loam, 0 to 2 percent slopes

622 Teguro cobbly loam, 2 to 20 percent slopes
623 Teguro gravelly loam, 5 to 20 percent slopes
624 Thompsoncabin, extremely bouldery-Thompsoncabin-Rock outcrop complex, 15 to 70 percent slopes
625 Thompsoncabin-Wildhill complex, 20 to 60 percent slopes
626 Thornlake ashy sandy loam, 0 to 2 percent slopes
627 Thornlake ashy sandy loam, nonsodic surface, 0 to 2 percent slopes
628 Thornlake complex, 0 to 2 percent slopes
629 Thornlake-Catlow-Kewake complex, 1 to 45 percent slopes
630 Thornlake-Kewake complex, 2 to 15 percent slopes
631 Thornlake-Morehouse complex, 0 to 15 percent slopes
632 Thornlake-Salhouse complex, 0 to 5 percent slopes
633 Thornlake-Salhouse complex, dunes, 0 to 20 percent slopes
634 Thornlake-Salhouse-Fossilake complex, 0 to 15 percent slopes
635 Teguro-Carryback complex, 5 to 20 percent slopes
636 Toll gravelly loamy sand, 2 to 20 percent slopes
637 Toll-Nevador complex, 0 to 15 percent slopes
638 Tonor ashy silt loam, 0 to 1 percent slopes
639 Tuffcabin ashy sandy loam, 1 to 10 percent slopes
640 Turpin fine sandy loam, 0 to 2 percent slopes
641 Turpin very fine sandy loam, 0 to 3 percent slopes
642 Turpin-Boravall-Playas complex, 0 to 5 percent slopes
643 Turpin-Kewake-Playas complex, 0 to 15 percent slopes
644 Turpin-Playas complex, 0 to 3 percent slopes
645 Turpin-Playas complex, saline, 0 to 3 percent slopes
646 Turpin-Playas complex, sodic, 0 to 3 percent slopes
647 Turpin-Rabbitcreek complex, 0 to 3 percent slopes
648 Turpin-Reese complex, 0 to 8 percent slopes
649 Turpin-Turpin, overblown, complex, 0 to 15 percent slopes

650 Vitale very cobbly sandy loam, 5 to 20 percent slopes

651 Wagontire gravelly clay loam, 2 to 20 percent slopes
652 Wanoga gravelly ashy loamy sand, 15 to 30 percent south slopes
653 Wanoga gravelly ashy loamy sand, 30 to 65 percent south slopes
654 Wanoga-Henkle complex, 0 to 15 percent slopes
655 Wanoga-Henkle complex, cool, 0 to 15 percent slopes
656 Wanoga-Henkle complex, dry, 0 to 15 percent slopes
657 Wanoga-Henkle complex, moist, 1 to 15 percent slopes
658 Wanoga-Henkle-Rock outcrop complex, 15 to 30 percent slopes
659 Wanoga-Henkle-Rock outcrop complex, 30 to 65 percent north slopes
660 Wanoga-Laidlaw gravelly ashy loamy sands, 0 to 3 percent slopes
661 Wanoga-Sisters complex, 3 to 15 percent slopes
663 Wegert ashy loamy fine sand, 0 to 15 percent slopes
664 Wegert ashy loamy sand, cool, 0 to 1 percent slopes
665 Wegert very cobbly ashy loamy fine sand, 0 to 15 percent slopes
666 Wegert-Kunceider complex, 0 to 3 percent slopes
667 Wegert-Kunceider complex, cool, 0 to 15 percent slopes
668 Wegert-Kunceider complex, high precipitation, 0 to 15 percent slopes
669 Wegert-Morehouse complex, 2 to 10 percent slopes
670 Weglike-Jacksplace complex, 1 to 6 percent slopes
671 Weglike-Suckerflat complex, 0 to 3 percent slopes
672 Westbutte-Lambring-Rock outcrop complex, 35 to 65 percent north slopes
673 Westbutte-Rock outcrop-Pernty association, 20 to 40 percent slopes
674 Widowspring silt loam, 0 to 2 percent slopes
675 Wildcatbutte-Chesebro-Glassbutte complex, 20 to 65 percent slopes
676 Wildcatbutte-Glencabin-Rock outcrop complex, 15 to 35 percent slopes
677 Wildcatbutte-Rock outcrop complex, 15 to 30 percent south slopes
678 Wildcatbutte-Rock outcrop complex, 20 to 50 percent slopes
679 Wildcatbutte-Suckerflat-Rock outcrop complex, 15 to 40 percent slopes
680 Winterim very gravelly loam, slump, 2 to 30 percent slopes
681 Wiskan-Rock outcrop complex, 15 to 45 percent slopes

682 Xerolls-Rock outcrop complex, 20 to 60 percent north slopes
683 Xerolls-Rock outcrop complex, 30 to 65 percent north slopes

684 Yankeewell very cobbly sandy loam, 2 to 15 percent slopes
685 Yankeewell-Noidee complex, 2 to 10 percent slopes
686 Yapoah gravelly ashy loamy sand, 15 to 40 percent north slopes
687 Yapoah gravelly ashy loamy sand, 15 to 40 percent south slopes
688 Youtlkue ashy silt loam, 0 to 2 percent slopes

689 Zorravista fine sand, 0 to 5 percent slopes
690 Zorravista-Hinton complex, 0 to 8 percent slopes

691 Lithic Haploxerolls-Lava flows complex, 2 to 15 percent slopes
692 Steiger ashy loamy coarse sand, 0 to 15 percent slopes
693 Steiger ashy loamy coarse sand, high elevation, 15 to 30 percent slopes
694 Steiger ashy loamy coarse sand, low landscape position, 0 to 3 percent slopes
695 Ninemile gravelly loam, hummocky, 0 to 8 percent slopes
696 Shanahan ashy loamy coarse sand, 0 to 15 percent slopes
888 Denied access
999 Water

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

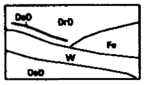
LAKE COUNTY, OREGON, NORTHERN PART, PARTS OF LAKE AND KLAMATH COUNTIES
OR 635

8/23/2012

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

SOIL SURVEY FEATURES

SOIL DELINEATIONS AND LABELS



ROAD EMBLEMS

Interstate	⛉
Federal	⛉
State	○
Other	▭

CULTURAL FEATURES

National, state or province	—— - - —
County or parish	—— - ——
Reservation (national or state forest or park)	—— - ——
Limit of soil survey (label)	————
Public Land Survey System Section Boundary	————

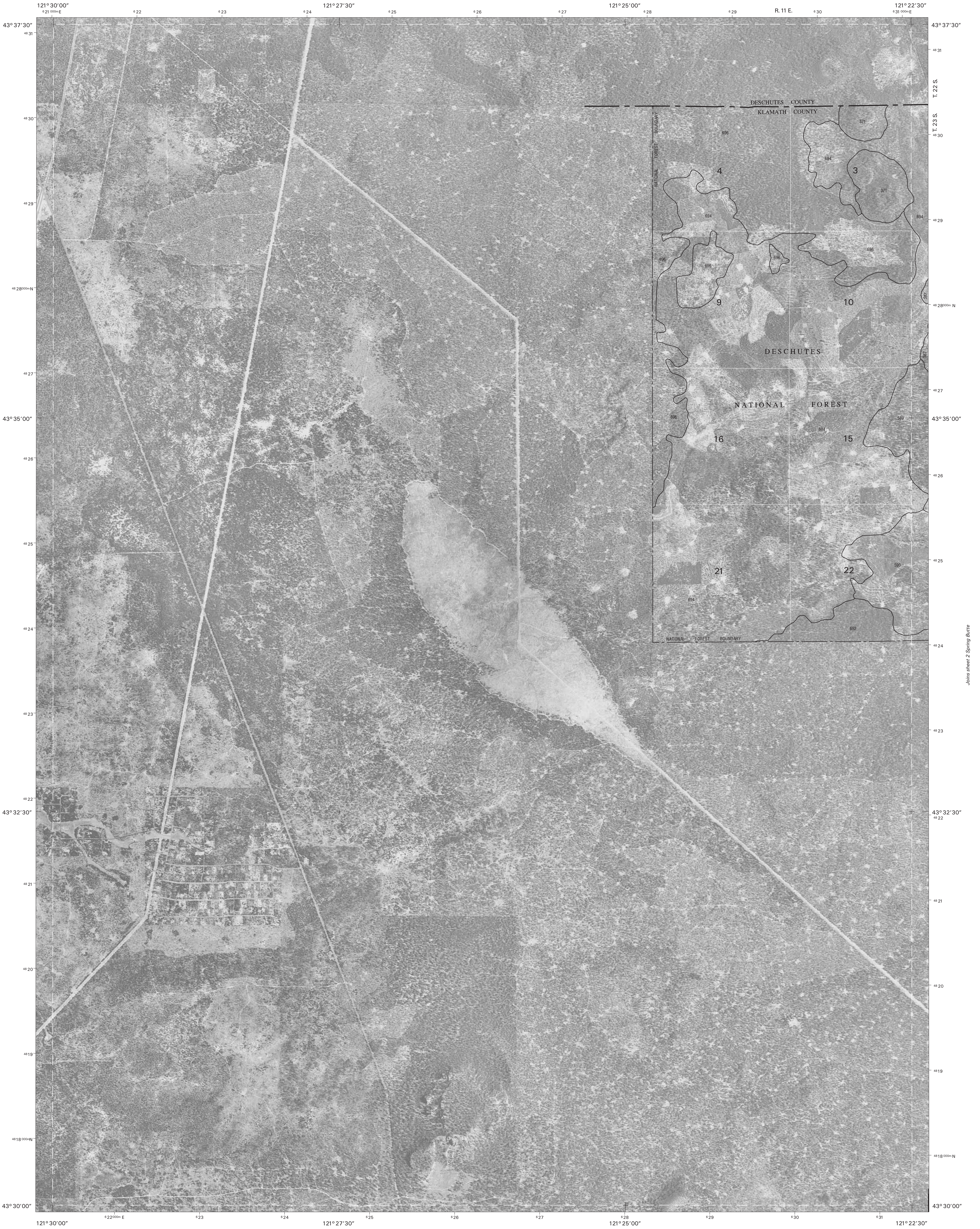
Label	Feature	Symbol	Size (Ac)
GPI	Gravel pit	✕	1 to 5
STV	Very stony spot	∞	1 to 5
WET	Wet spot	Ψ	2 to 5
PHA	Haploxerolls	‡	1 to 5

DEFINITIONS

Label	Feature	Definition
GPI	Gravel pit	An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel.
STV	Very stony spot	A spot where 0.1 to 3 percent of the surface cover is rock fragments that are greater than 10 inches in diameter where the surrounding soil has less than 0.01 percent of the surface cover of stones.
WET	Wet spot	A somewhat poorly drained to very poorly drained area that is at least two drainage classes welter than the named soils in the surrounding map unit.
PHA	Haploxerolls	Small areas of Haploxerolls soil with aspen woodland vegetation.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
MOFFITT BUTTE QUADRANGLE
SHEET NUMBER 1 OF 89

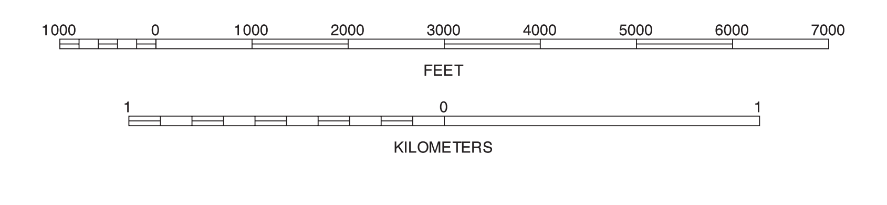


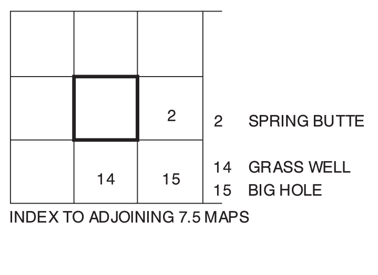
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION

SCALE 1:24000





2 SPRING BUTTE
14 GRASS WELL
15 BIG HOLE

INDEX TO ADJOINING 7.5 MAPS

Joins sheet 15 Big Hole

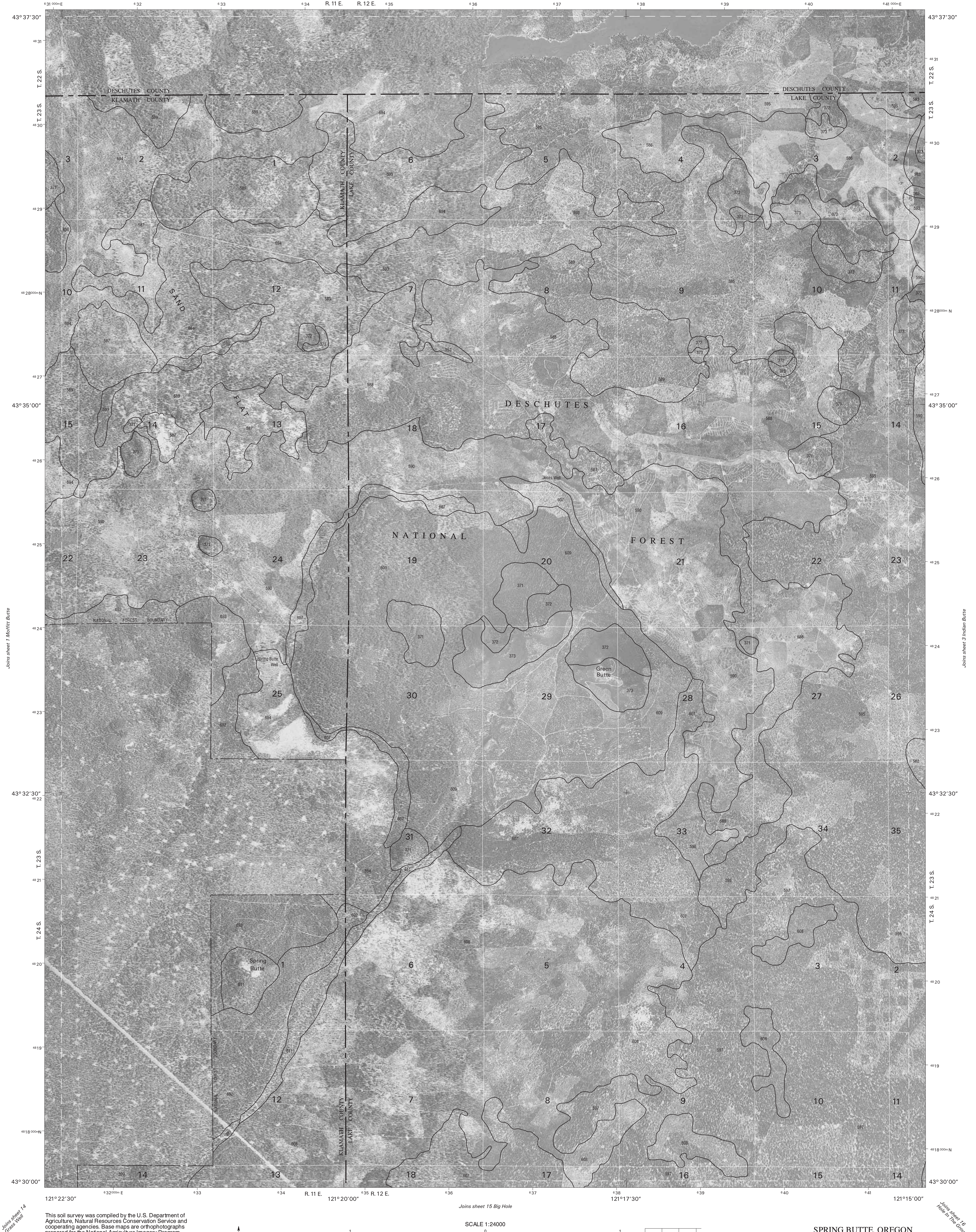
MOFFITT BUTTE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 1 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

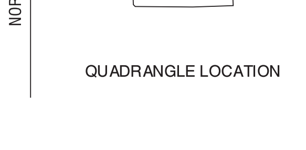
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SPRING BUTTE QUADRANGLE
SHEET NUMBER 2 OF 89

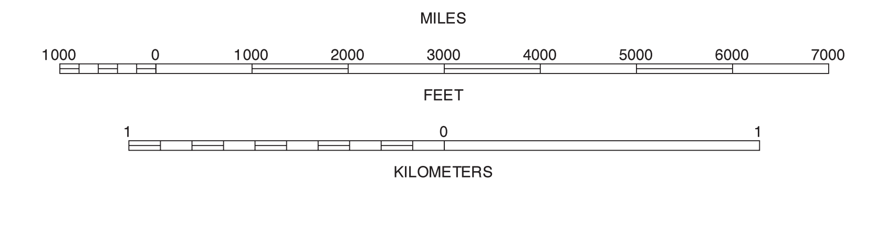


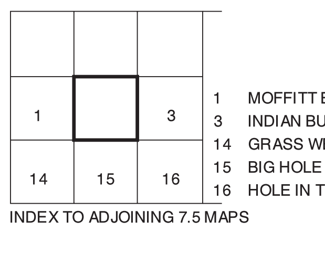
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION





1 MOFFITT BUTTE
3 INDIAN BUTTE
14 GRASS WELL
15 BIG HOLE
16 HOLE IN THE GROUND

INDEX TO ADJOINING 7.5 MAPS

SPRING BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 2 OF 89

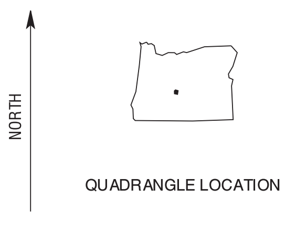
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
INDIAN BUTTE QUADRANGLE
SHEET NUMBER 3 OF 89

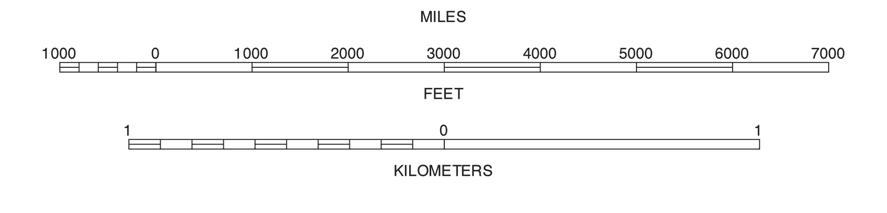
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



2		4
15	16	17

2 SPRING BUTTE
4 SOUTH ICE CAVE
15 BIG HOLE
16 HOLE IN THE GROUND
17 CABIN LAKE

INDEX TO ADJOINING 7.5 MAPS

INDIAN BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 3 OF 89

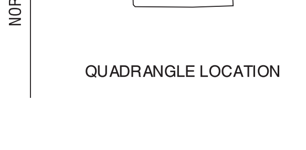
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SOUTH ICE CAVE QUADRANGLE
SHEET NUMBER 4 OF 89

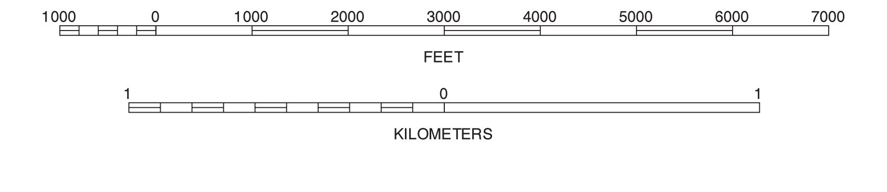
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

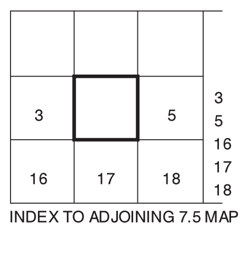
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





3 INDIAN BUTTE
5 SIXTEEN BUTTE
16 HOLE IN THE GROUND
17 CABIN LAKE
18 COUGAR MOUNTAIN

INDEX TO ADJOINING 7.5 MAPS

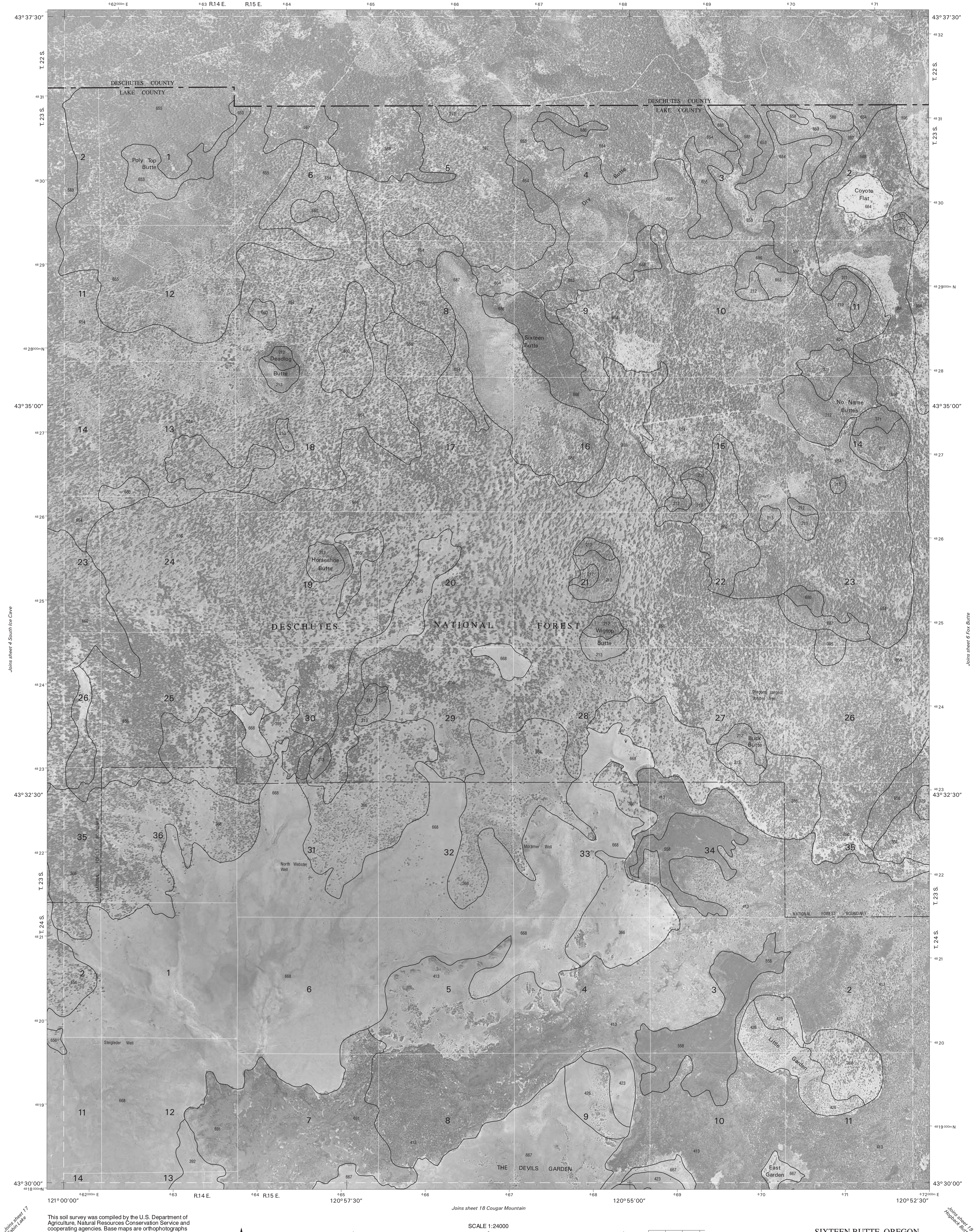
SOUTH ICE CAVE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 4 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

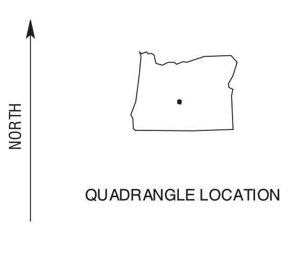
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

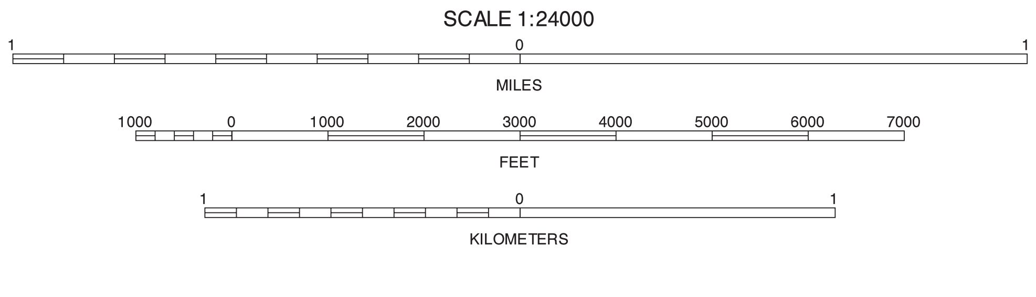
LAKE COUNTY, OREGON, NORTHERN PART
SIXTEEN BUTTE QUADRANGLE
SHEET NUMBER 5 OF 89

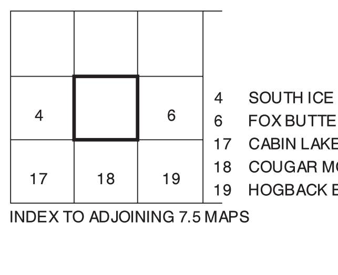


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.





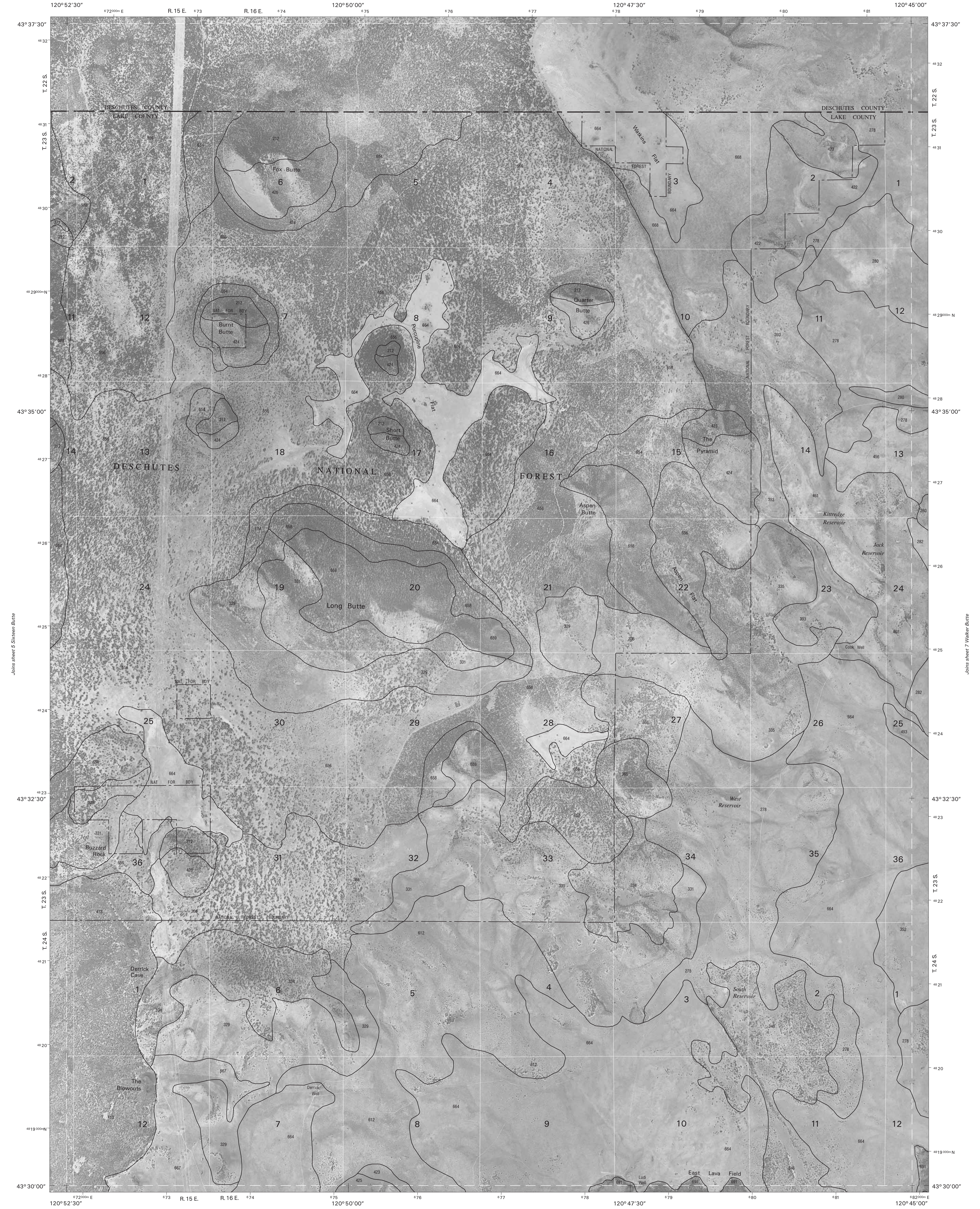


SIXTEEN BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 5 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
FOX BUTTE QUADRANGLE
SHEET NUMBER 6 OF 89

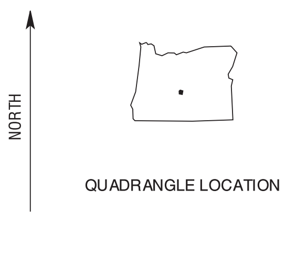


Joins sheet 18 Cougar Mountain

Joins sheet 20 Jacks Place

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

5 SIXTEEN BUTTE
7 WALKER BUTTE
18 COUGAR MOUNTAIN
19 HOGBACK BUTTE
20 JACKS PLACE

INDEX TO ADJOINING 7.5 MAPS

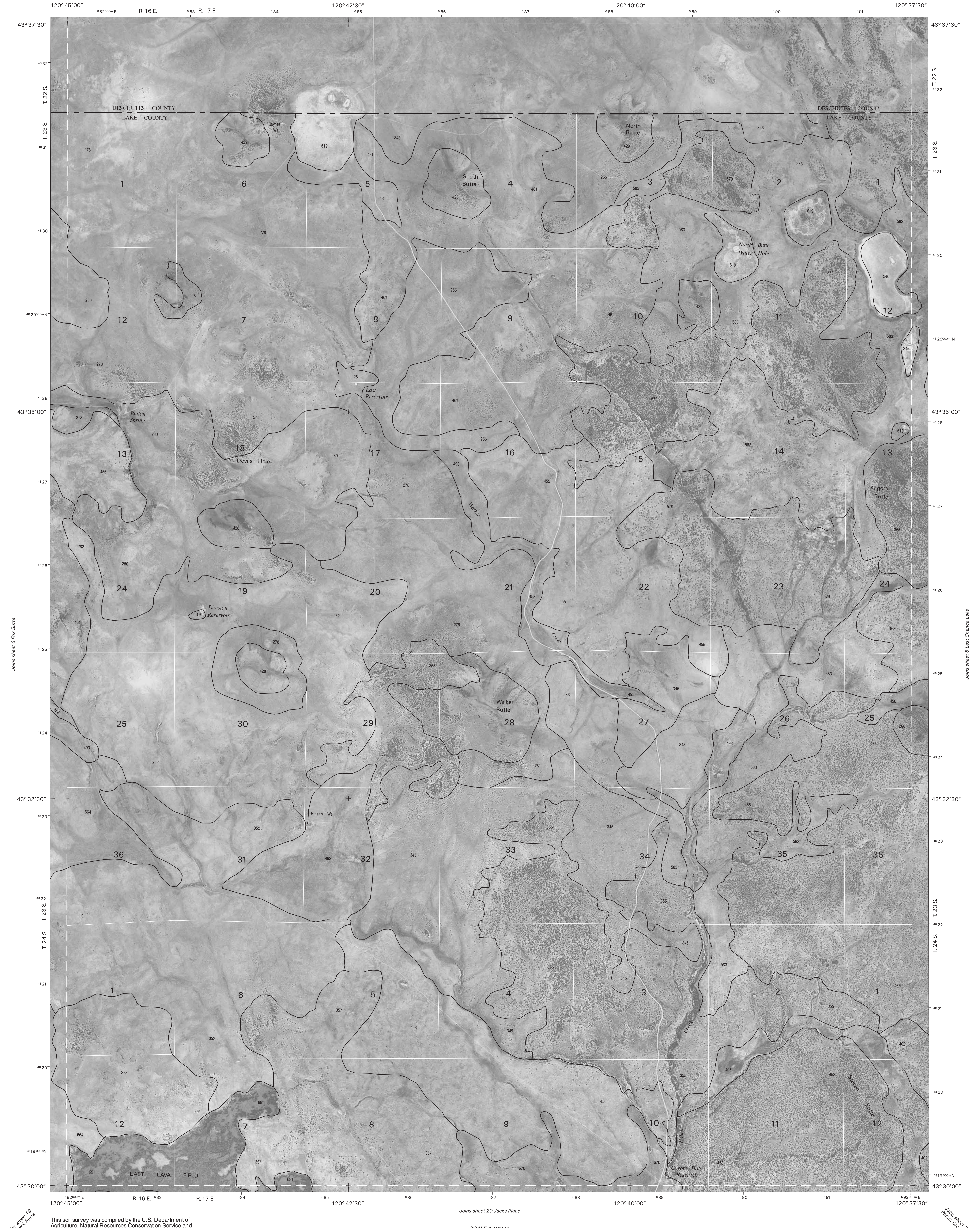
FOX BUTTE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 6 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
WALKER BUTTE QUADRANGLE
SHEET NUMBER 7 OF 89

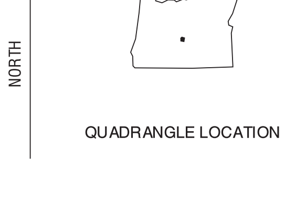


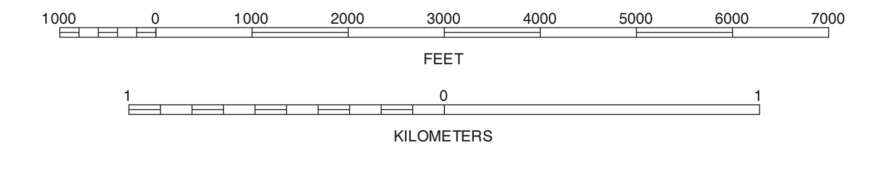
Joins sheet 19 Hogback Butte

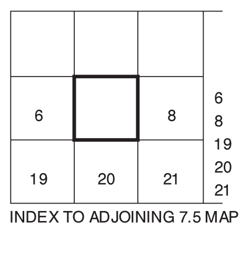
Joins sheet 21 Peters Creek Sink

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.







6 FOX BUTTE
8 LAST CHANCE LAKE
19 HOGBACK BUTTE
20 JACKS PLACE
21 PETERS CREEK SINK

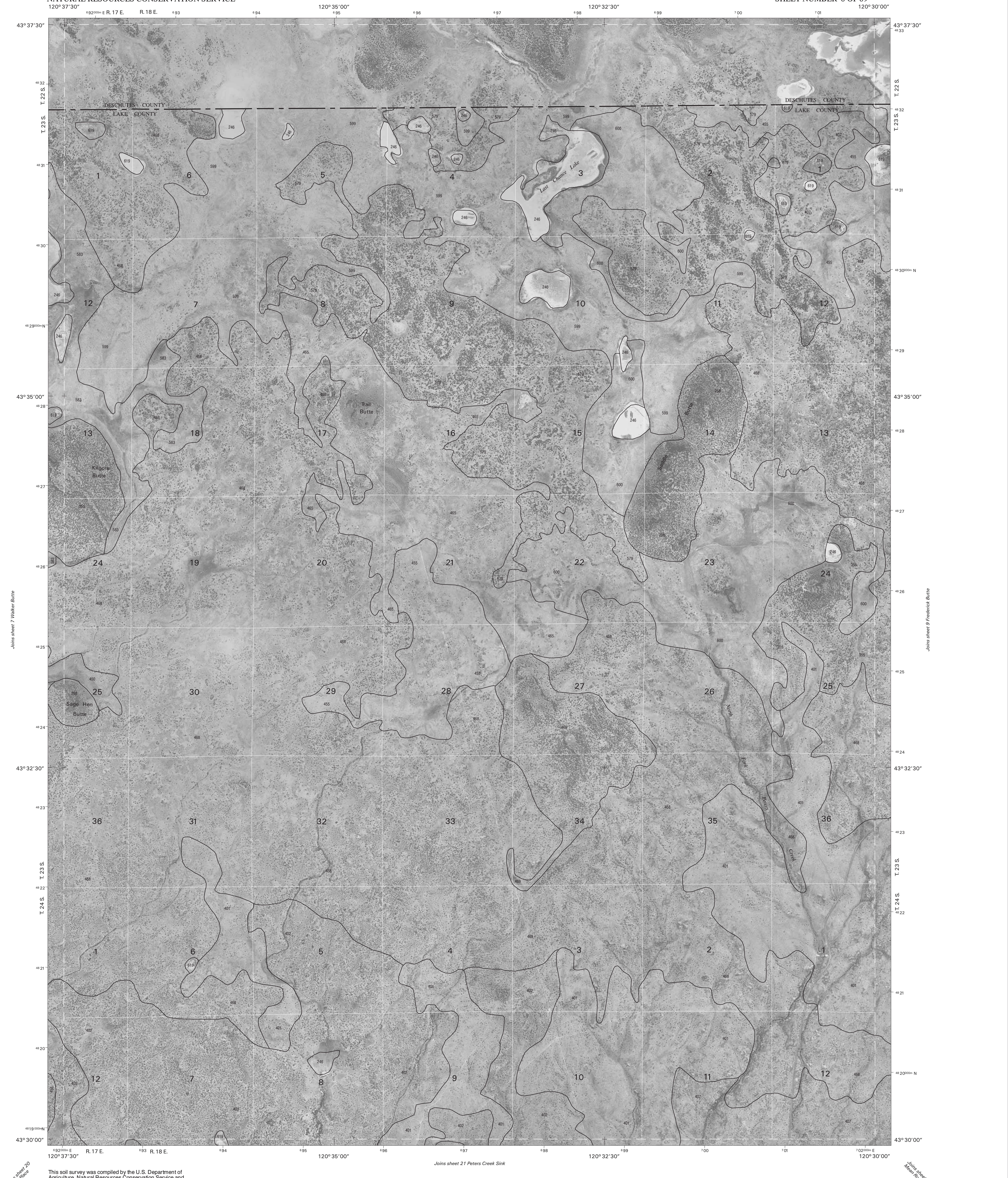
INDEX TO ADJOINING 7.5 MAPS

WALKER BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 7 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

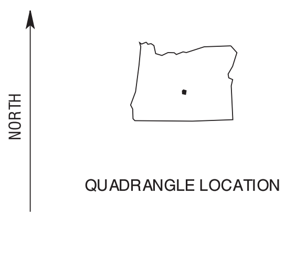
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
LAST CHANCE LAKE QUADRANGLE
SHEET NUMBER 8 OF 89



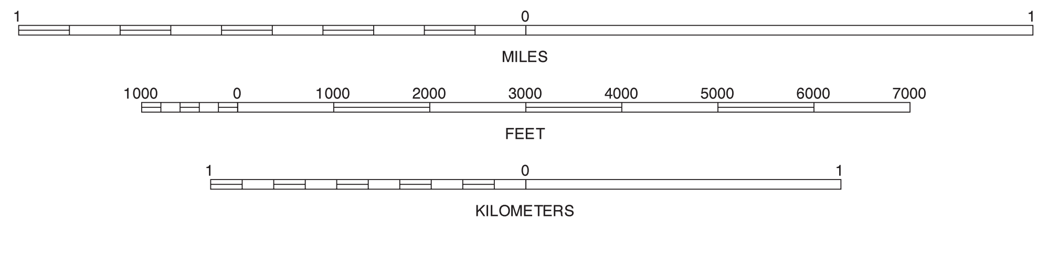
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

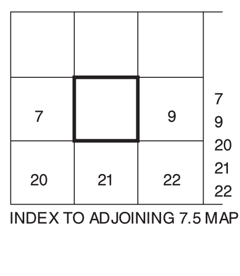
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





7 WALKER BUTTE
9 FREDERICK BUTTE
20 JACKS PLACE
21 PETERS CREEK SINK
22 MEAN ROCK WELL

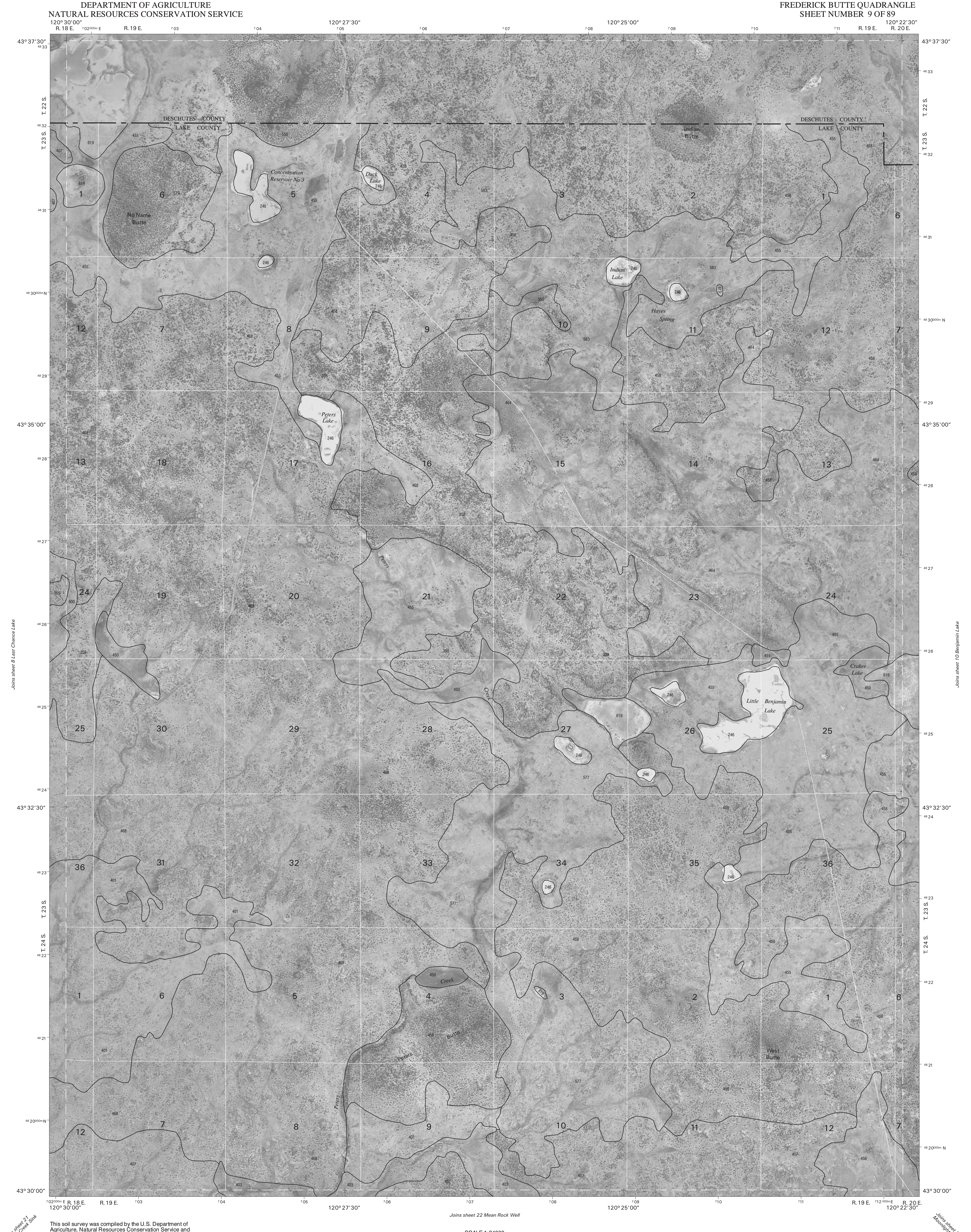
INDEX TO ADJOINING 7.5 MAPS

LAST CHANCE LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 8 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
FREDERICK BUTTE QUADRANGLE
SHEET NUMBER 9 OF 89



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

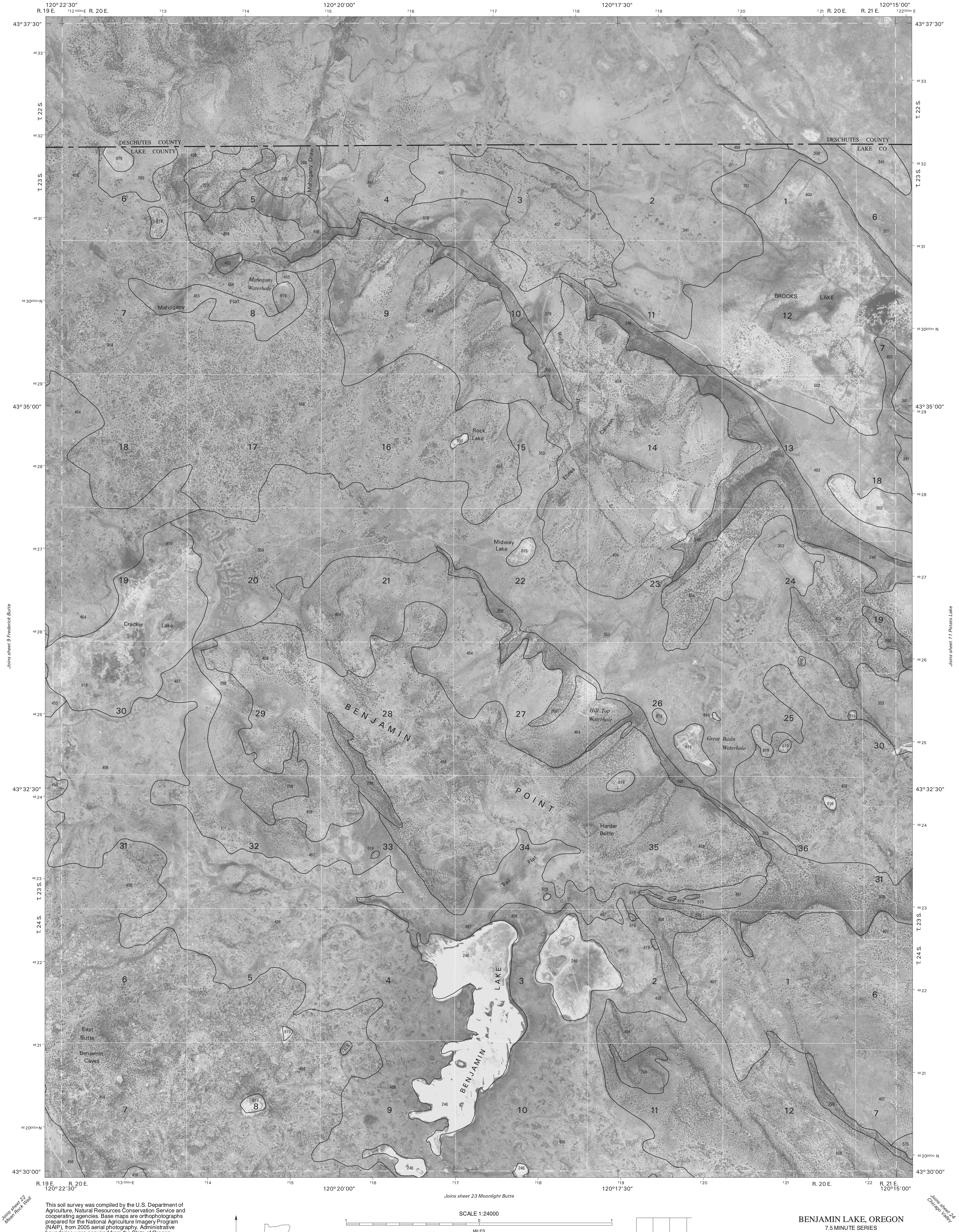
8 LAST CHANCE LAKE
10 BENJAMIN LAKE
21 PETERS CREEK SINK
22 MEAN ROCK WELL
23 MOONLIGHT BUTTE

FREDERICK BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 9 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

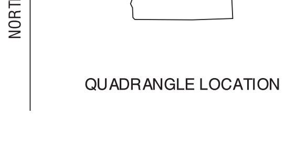
LAKE COUNTY, OREGON, NORTHERN PART
BENJAMIN LAKE QUADRANGLE
SHEET NUMBER 10 OF 89



Joins sheet 22 Mean Rock Well

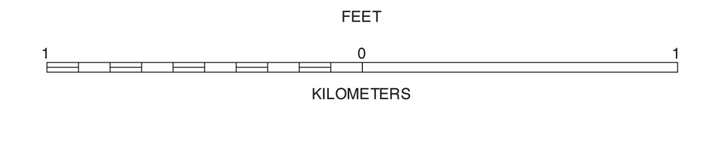
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

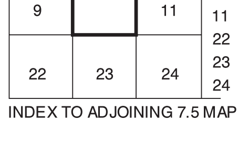
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





9 FREDERICK BUTTE
11 POTATO LAKE
22 MEAN ROCK WELL
23 MOONLIGHT BUTTE
24 CHICAGO VALLEY

INDEX TO ADJOINING 7.5 MAPS

BENJAMIN LAKE, OREGON

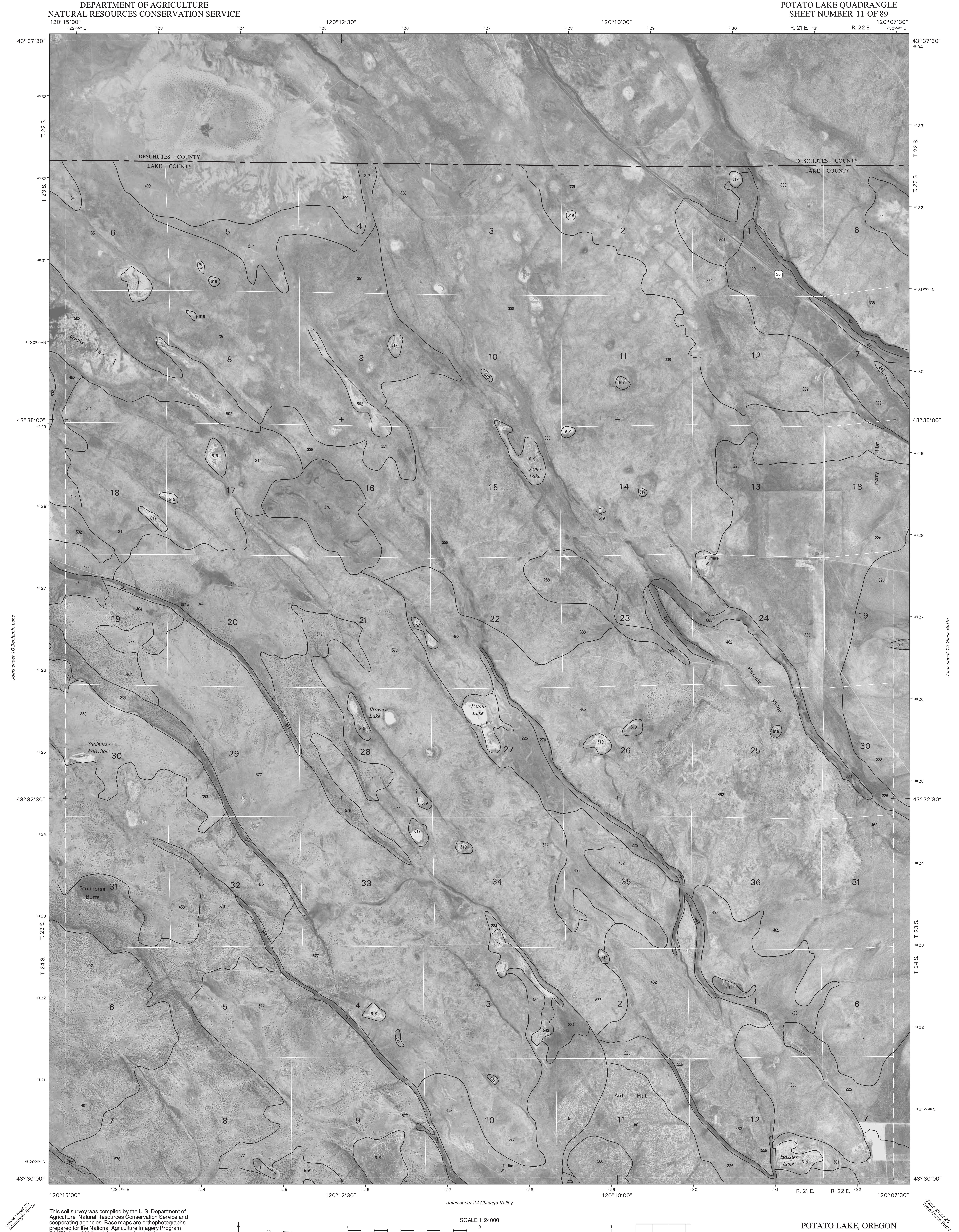
7.5 MINUTE SERIES
SHEET NUMBER 10 OF 89

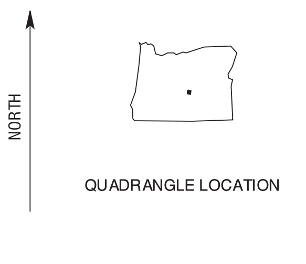
Joins sheet 24 Chicago Valley

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

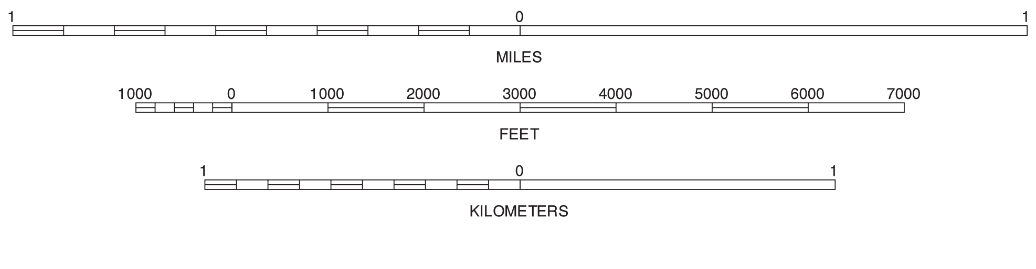
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

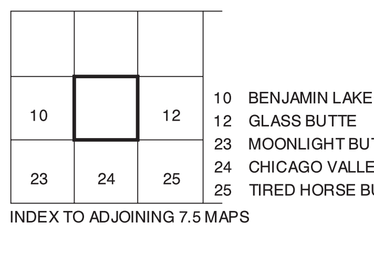
LAKE COUNTY, OREGON, NORTHERN PART
POTATO LAKE QUADRANGLE
SHEET NUMBER 11 OF 89





QUADRANGLE LOCATION





10 BENJAMIN LAKE
12 GLASS BUTTE
23 MOONLIGHT BUTTE
24 CHICAGO VALLEY
25 TIRED HORSE BUTTE

INDEX TO ADJOINING 7.5 MAPS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

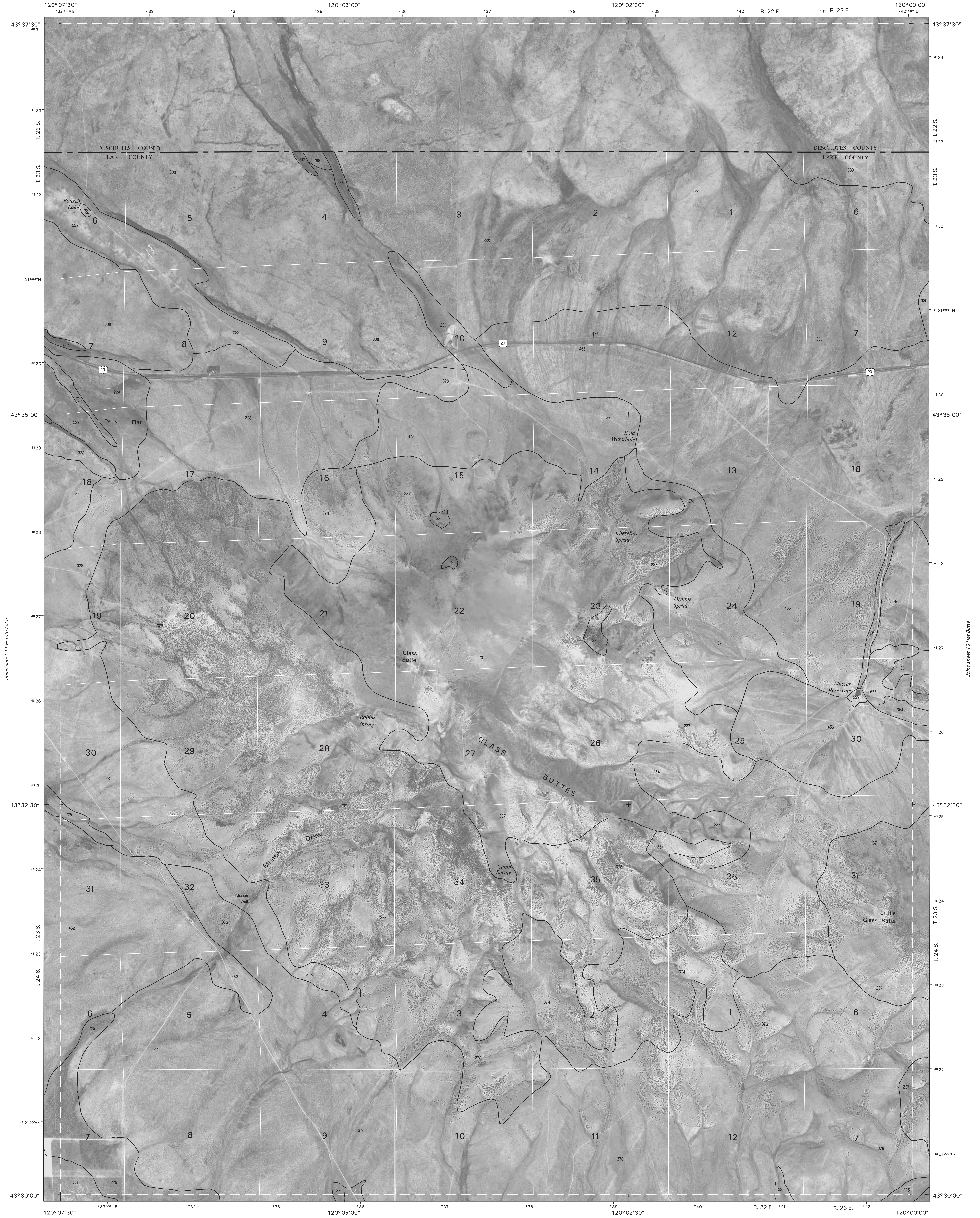
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

POTATO LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 11 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

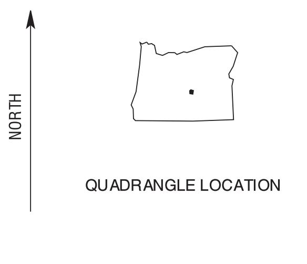
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
GLASS BUTTE QUADRANGLE
SHEET NUMBER 12 OF 89

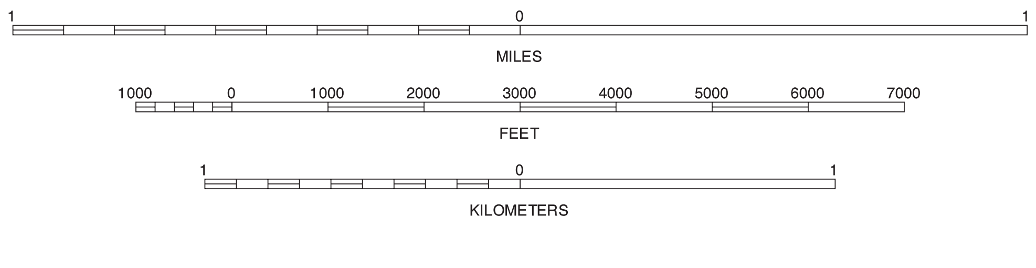


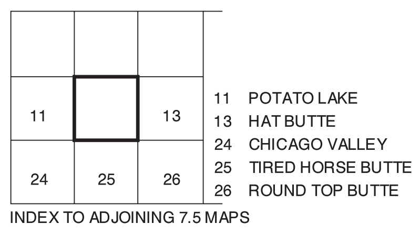
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION





11 POTATO LAKE
13 HAT BUTTE
24 CHICAGO VALLEY
25 TIRED HORSE BUTTE
26 ROUND TOP BUTTE

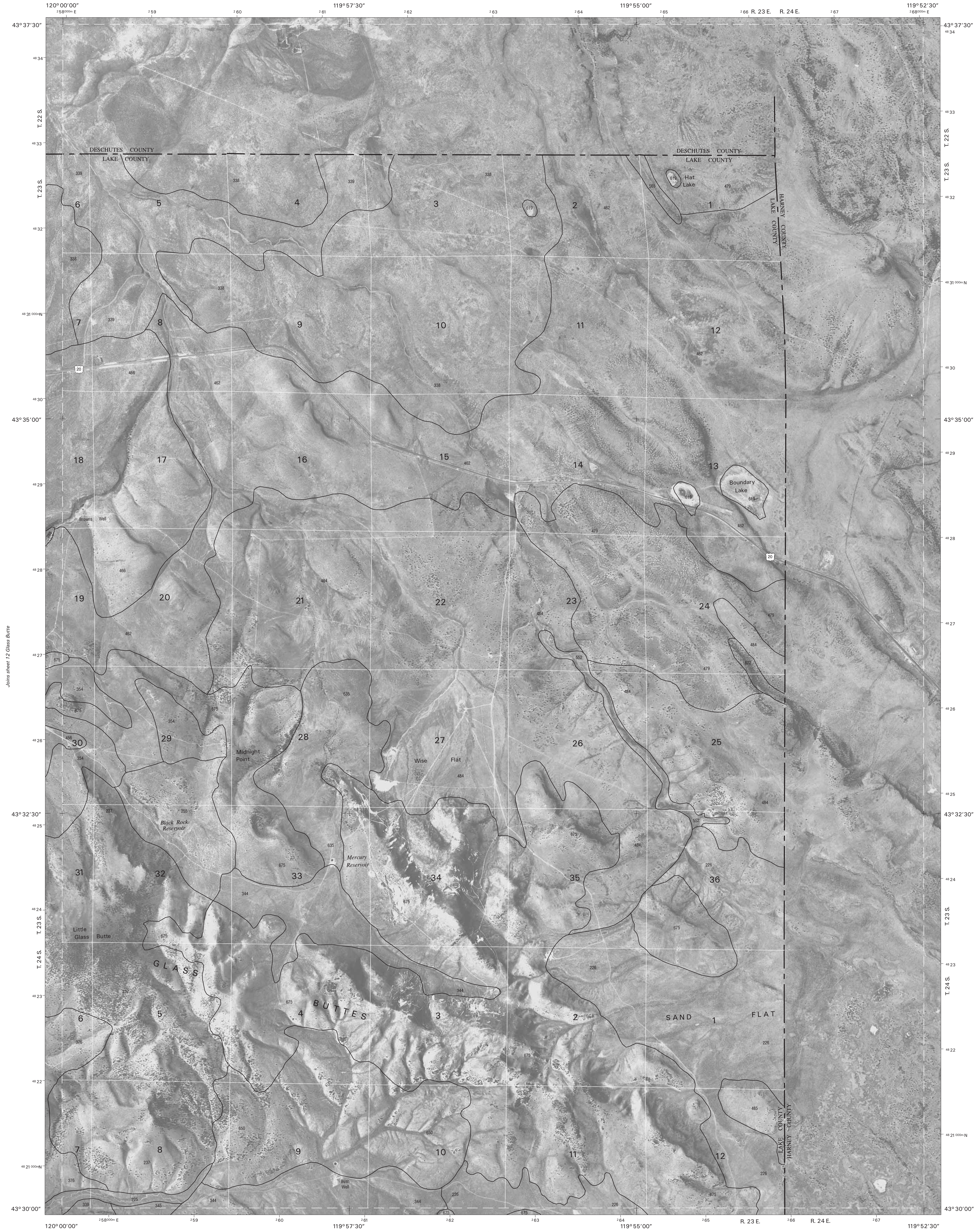
INDEX TO ADJOINING 7.5 MAPS

GLASS BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 12 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

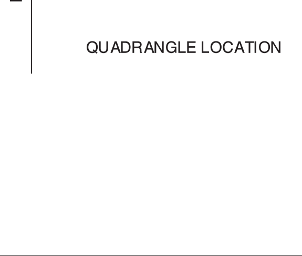
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
HAT BUTTE QUADRANGLE
SHEET NUMBER 13 OF 89



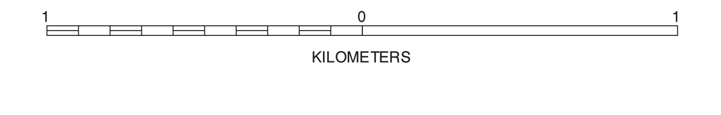
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

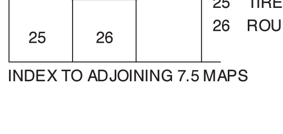
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





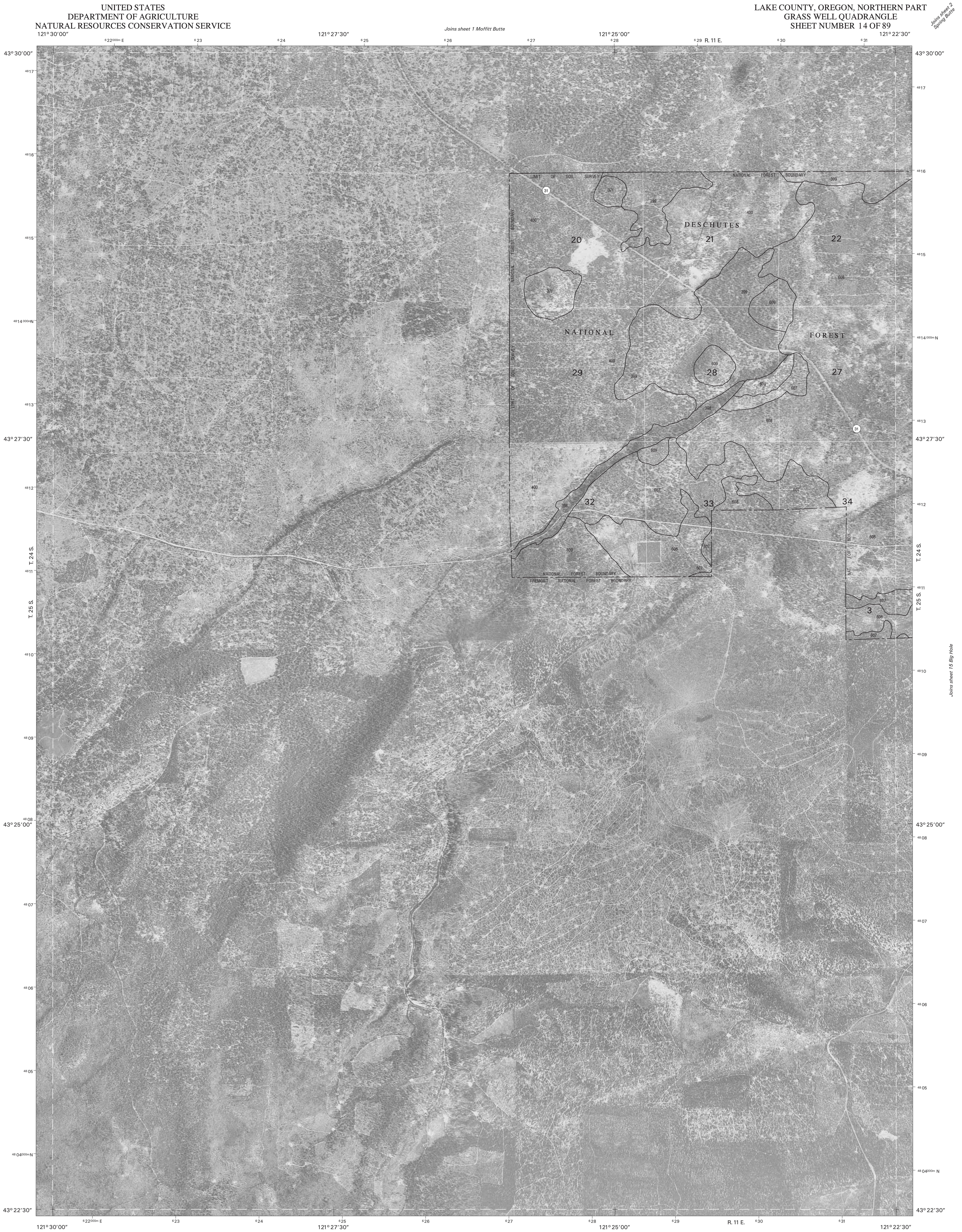
INDEX TO ADJOINING 7.5 MAPS

HAT BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

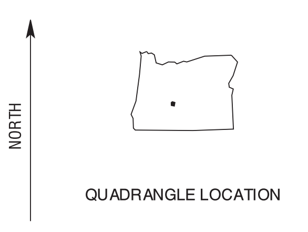
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
GRASS WELL QUADRANGLE
SHEET NUMBER 14 OF 89

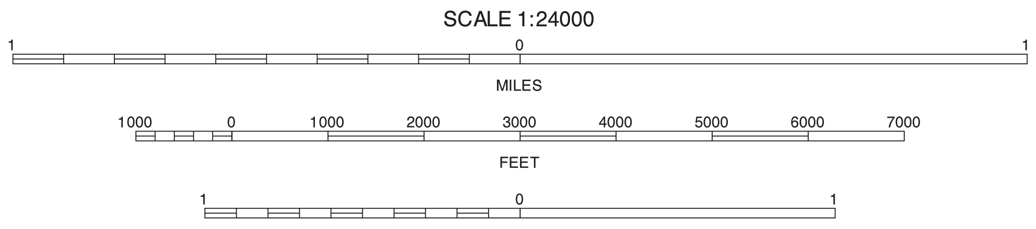


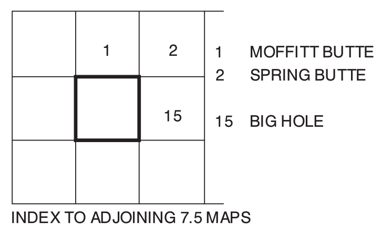
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION





1 MOFFITT BUTTE
2 SPRING BUTTE
15 BIG HOLE

INDEX TO ADJOINING 7.5 MAPS

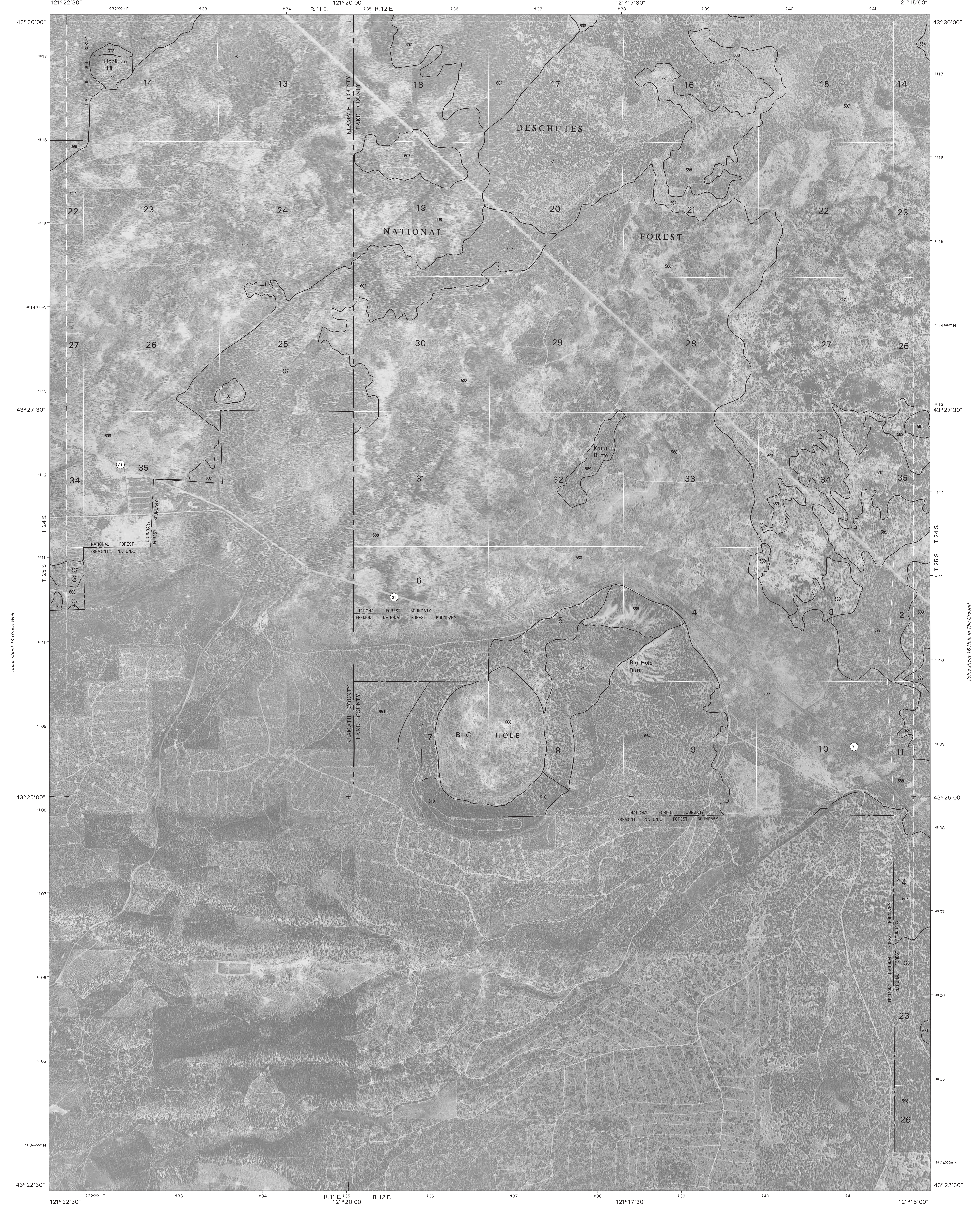
GRASS WELL, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 14 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
BIG HOLE QUADRANGLE
SHEET NUMBER 15 OF 89

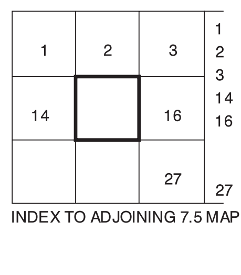


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION

SCALE 1:24000



1 MOFFITT BUTTE
2 SPRING BUTTE
3 INDIAN BUTTE
14 GRASS WELL
16 HOLE IN THE GROUND
27 MCCARTY BUTTE

INDEX TO ADJOINING 7.5 MAPS

BIG HOLE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 15 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

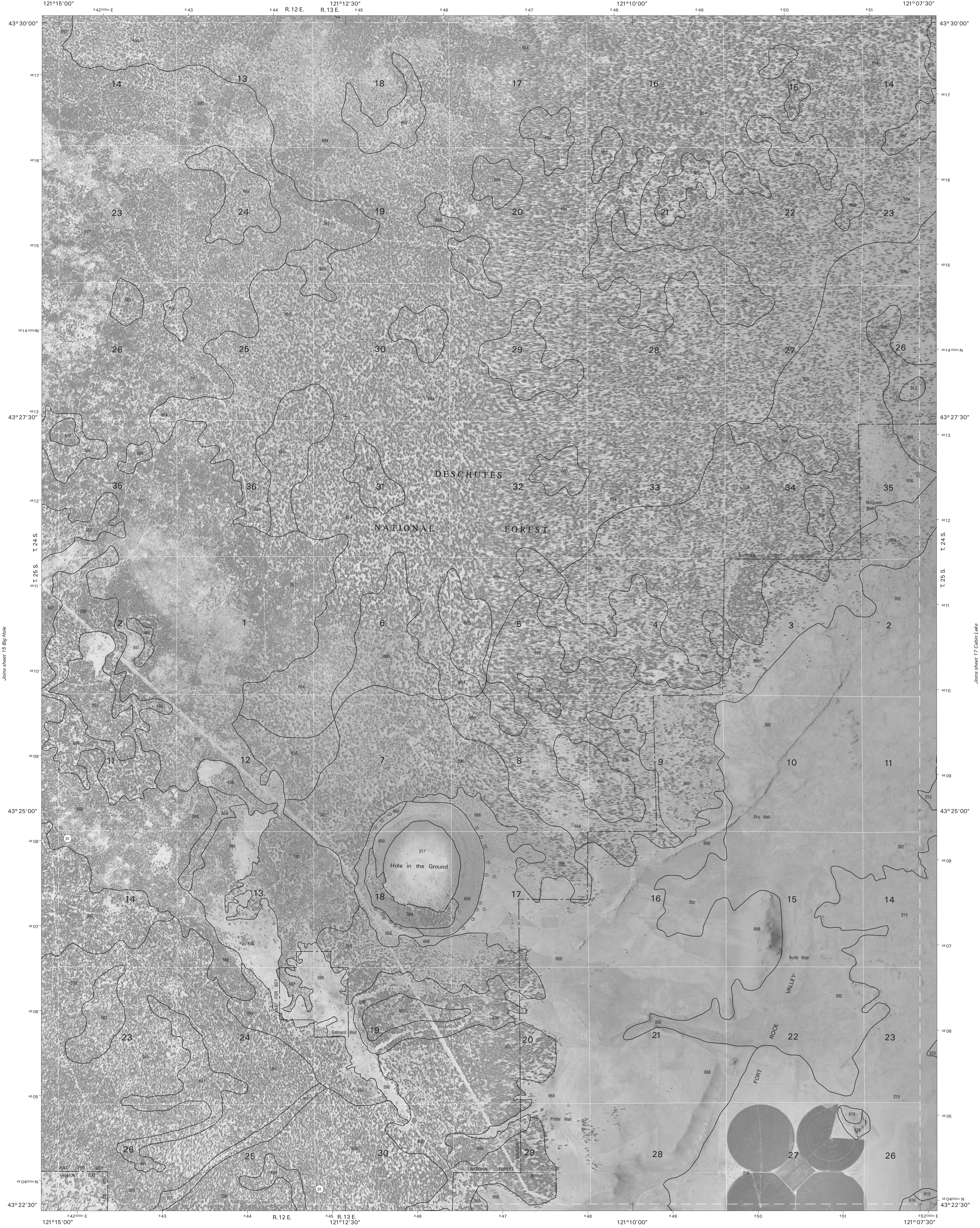
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
HOLE IN THE GROUND QUADRANGLE
SHEET NUMBER 16 OF 89

Joins sheet 2 Spring Butte

Joins sheet 3 Indian Butte

Joins sheet 4 South Ice Cave



Joins sheet 15 Big Hole

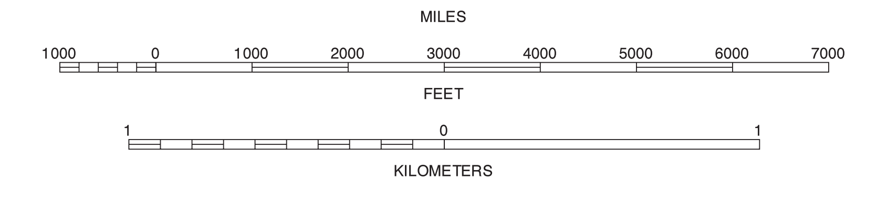
Joins sheet 17 Cabin Lake

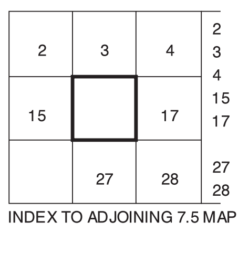
Joins sheet 27 McCarty Butte

Joins sheet 28 Fort Rock

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.





2 SPRING BUTTE
3 INDIAN BUTTE
4 SOUTH ICE CAVE
15 BIG HOLE
17 CABIN LAKE
27 MCCARTY BUTTE
28 FORT ROCK

INDEX TO ADJOINING 7.5 MAPS

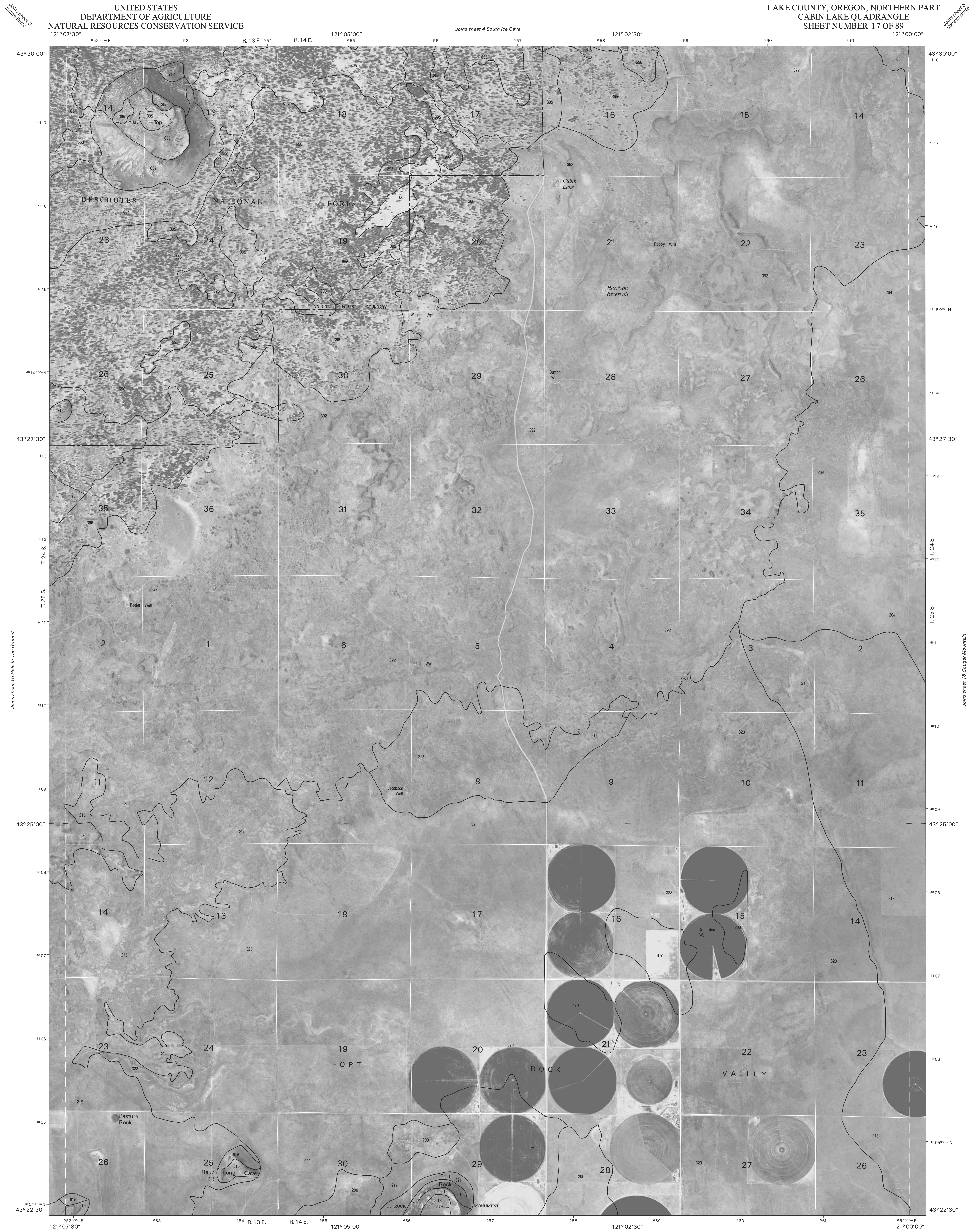
HOLE IN THE GROUND, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 16 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

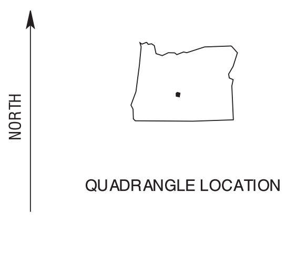
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
CABIN LAKE QUADRANGLE
SHEET NUMBER 17 OF 89

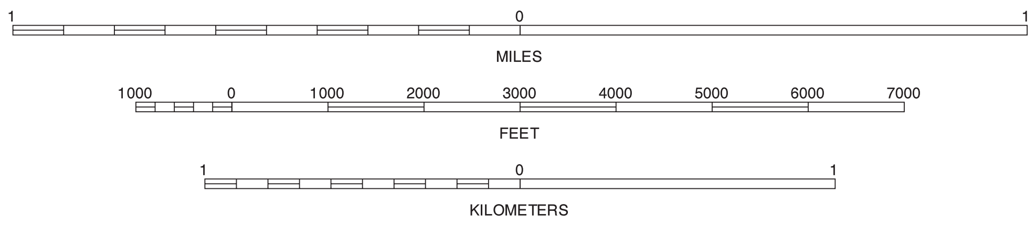


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



3	4	5
16		18
27	28	29

3 INDIAN BUTTE
4 SOUTH ICE CAVE
5 SIXTEEN BUTTE
16 HOLE IN THE GROUND
18 COUGAR MOUNTAIN
27 MCCARTY BUTTE
28 FORT ROCK
29 SCHAUB LAKE

INDEX TO ADJOINING 7.5 MAPS

CABIN LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 17 OF 89

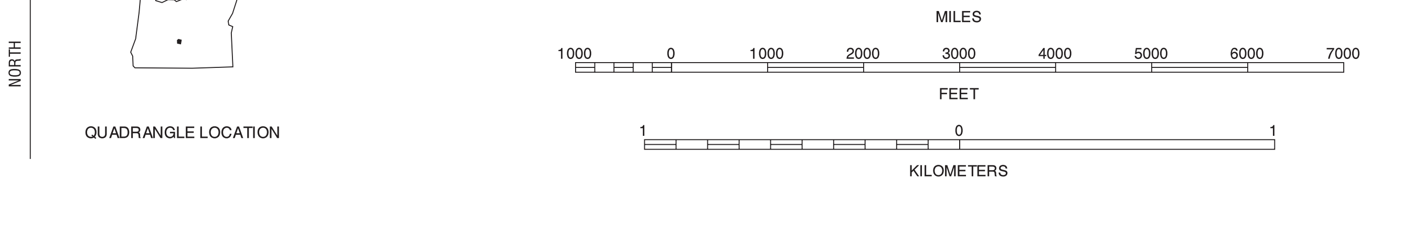
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
COUGAR MOUNTAIN QUADRANGLE
SHEET NUMBER 18 OF 89

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



4	5	6
17		19
28	29	30

4 SOUTH ICE CAVE
5 SIXTEEN BUTTE
6 FOX BUTTE
17 CABIN LAKE
19 HOGBACK BUTTE
28 FORT ROCK
29 SCHAUB LAKE
30 LANE LAKE

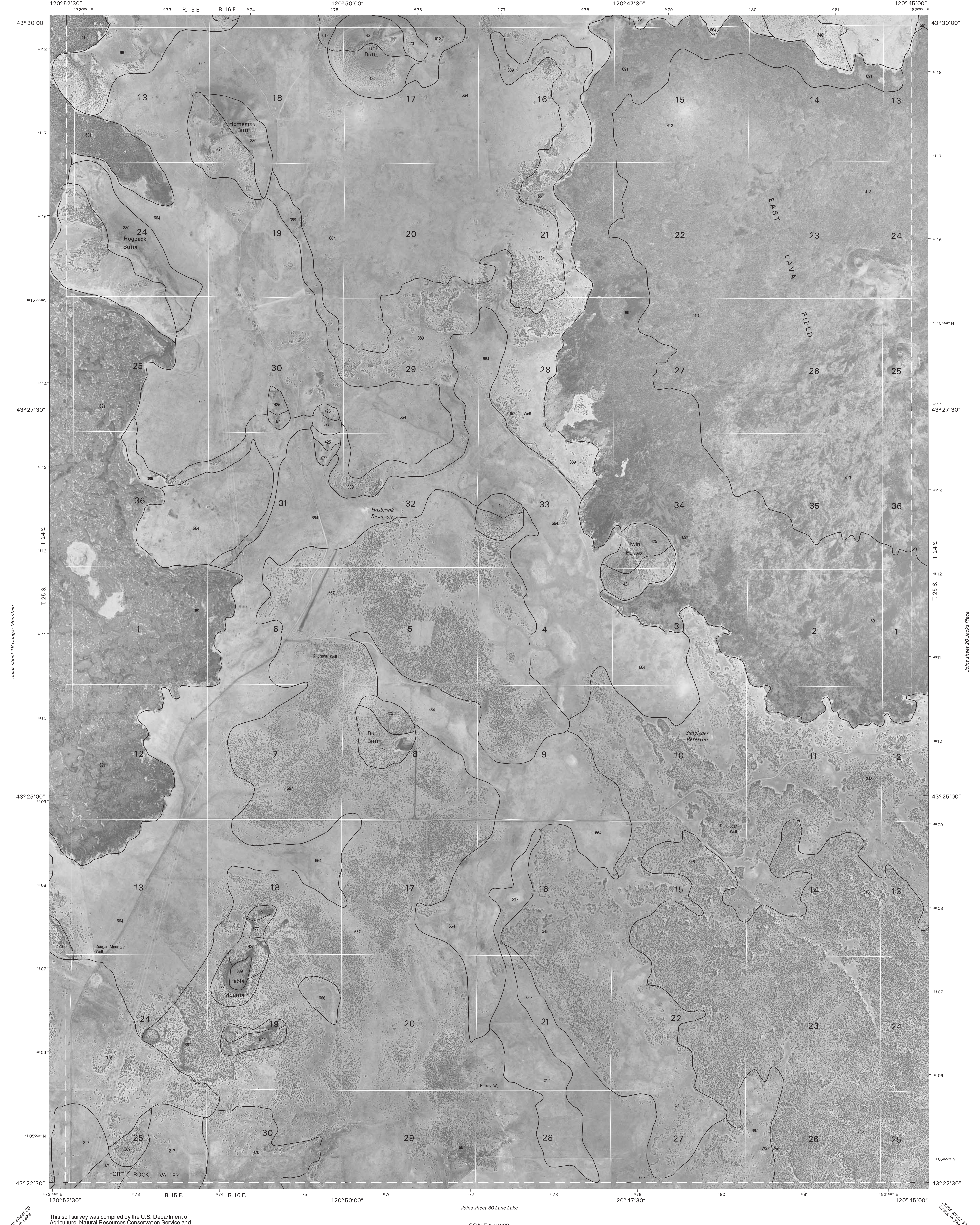
INDEX TO ADJOINING 7.5 MAPS

COUGAR MOUNTAIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 18 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

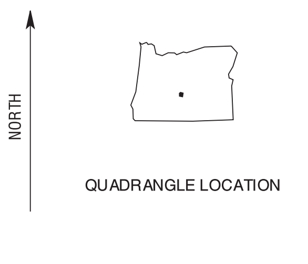
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
HOGBACK BUTTE QUADRANGLE
SHEET NUMBER 19 OF 89



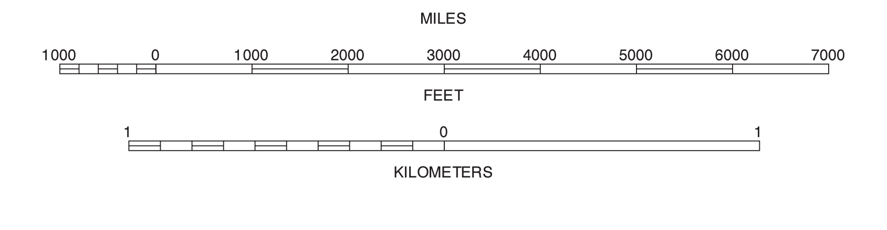
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



5	6	7
18		20
29	30	31

5 SIXTEEN BUTTE
6 FOX BUTTE
7 WALKER BUTTE
18 COUGAR MOUNTAIN
20 JACKS PLACE
29 SCHAUB LAKE
30 LANE LAKE
31 CRACK IN THE GROUND

INDEX TO ADJOINING 7.5 MAPS

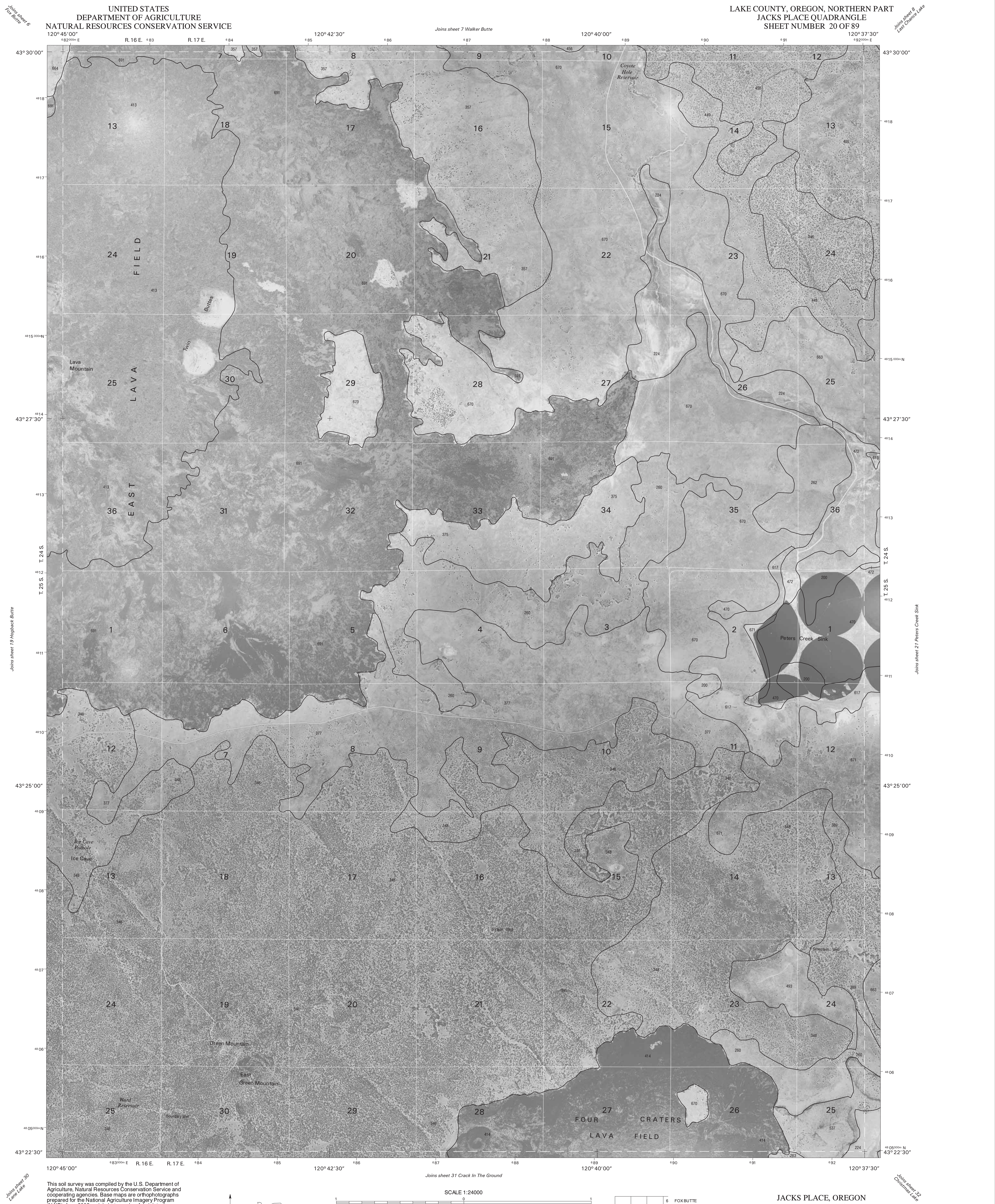
HOGBACK BUTTE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 19 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

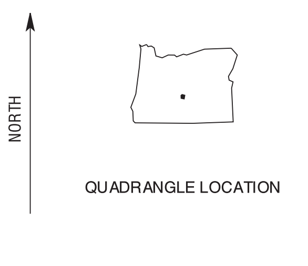
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
JACKS PLACE QUADRANGLE
SHEET NUMBER 20 OF 89



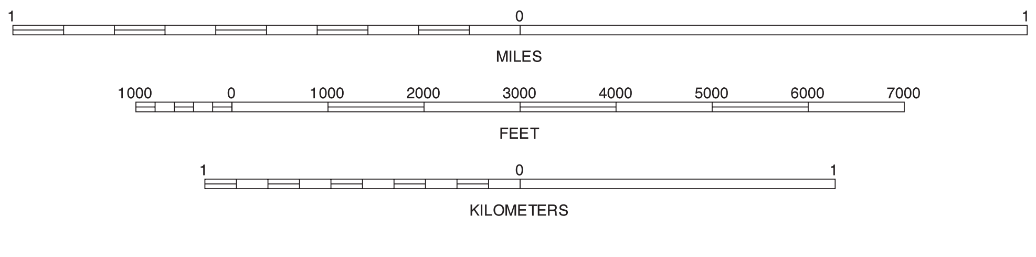
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



6	7	8
19		21
30	31	32

6 FOX BUTTE
7 WALKER BUTTE
8 LAST CHANCE LAKE
19 HOGBACK BUTTE
21 PETERS CREEK SINK
30 LANE LAKE
31 CRACK IN THE GROUND
32 CHRISTMAS LAKE

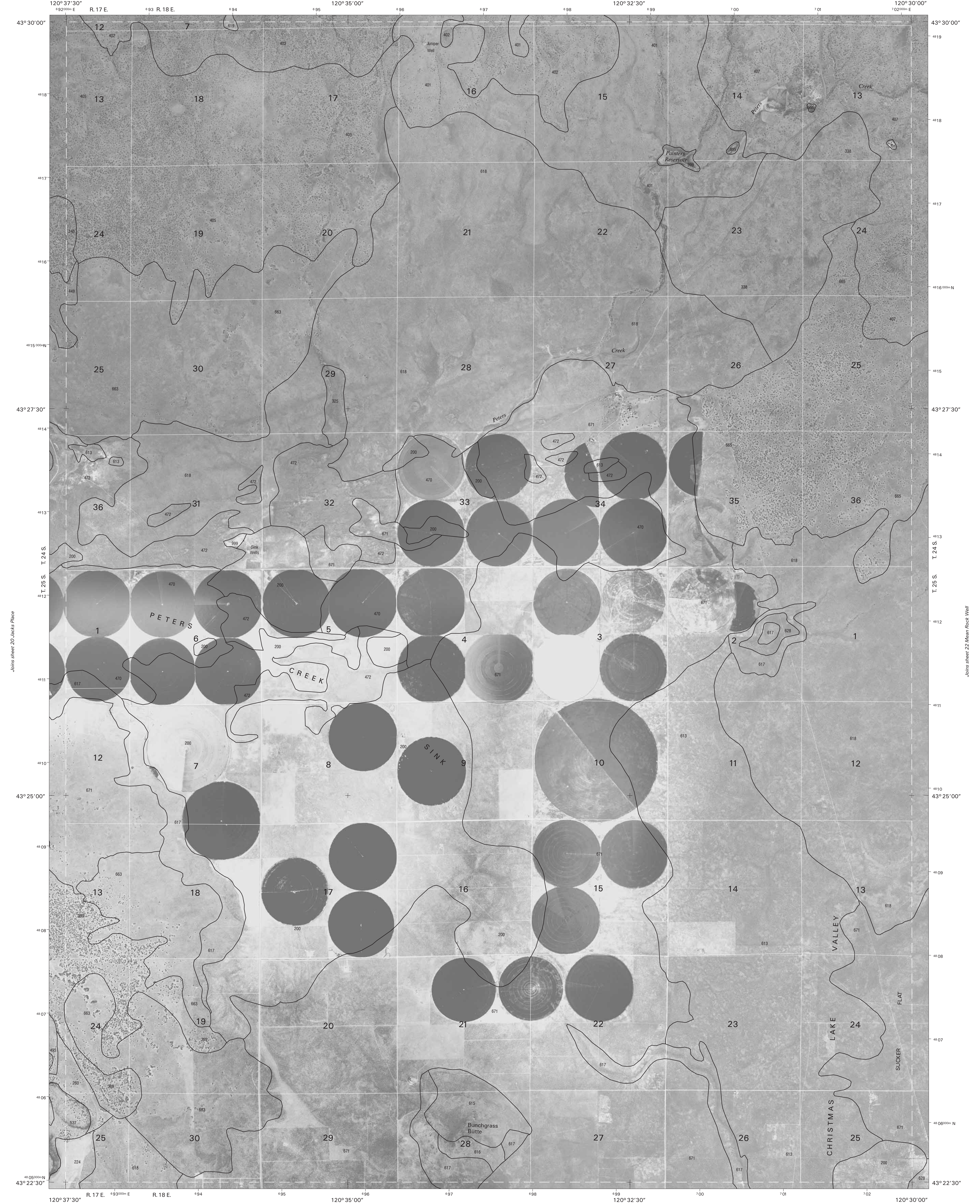
INDEX TO ADJOINING 7.5 MAPS

JACKS PLACE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 20 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

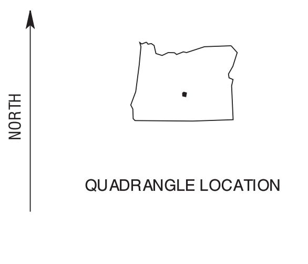
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
PETERS CREEK SINK QUADRANGLE
SHEET NUMBER 21 OF 89



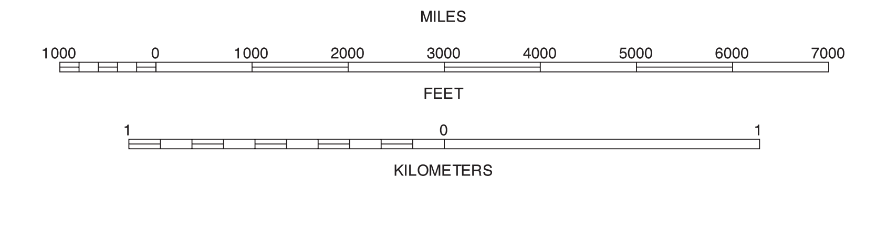
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



7	8	9
20		22
31	32	33

7 WALKER BUTTE
8 LAST CHANCE LAKE
9 FREDERICK BUTTE
20 JACKS PLACE
22 MEAN ROCK WELL
31 CRACK IN THE GROUND
32 CHRISTMAS LAKE
33 FOSSIL LAKE

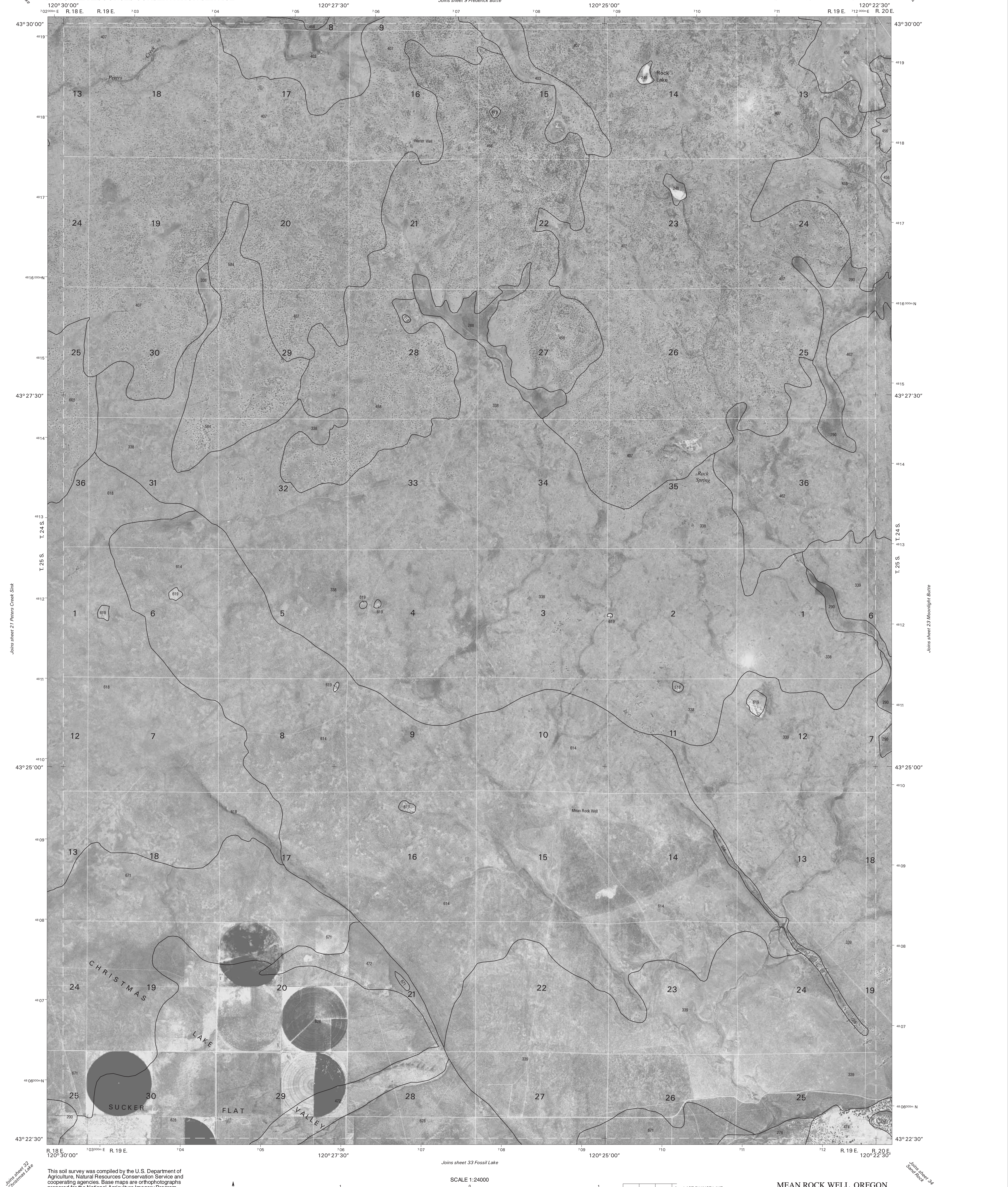
INDEX TO ADJOINING 7.5 MAPS

PETERS CREEK SINK, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 21 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

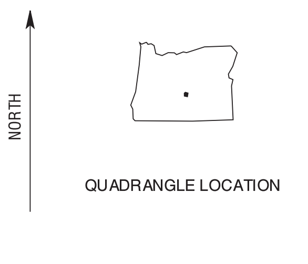
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
MEAN ROCK WELL QUADRANGLE
SHEET NUMBER 22 OF 89



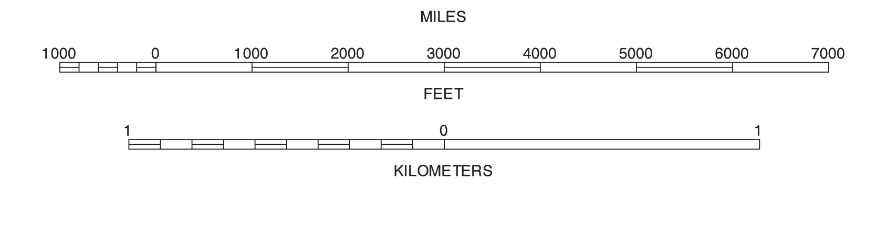
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

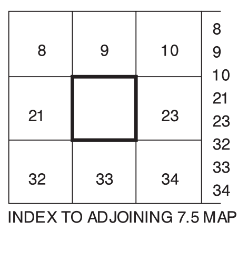
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





8	LAST CHANCE LAKE
9	FREDERICK BUTTE
10	BENJAMIN LAKE
21	PETERS CREEK SINK
23	MOONLIGHT BUTTE
32	CHRISTMAS LAKE
33	FOSSIL LAKE
34	SAND ROCK

INDEX TO ADJOINING 7.5 MAPS

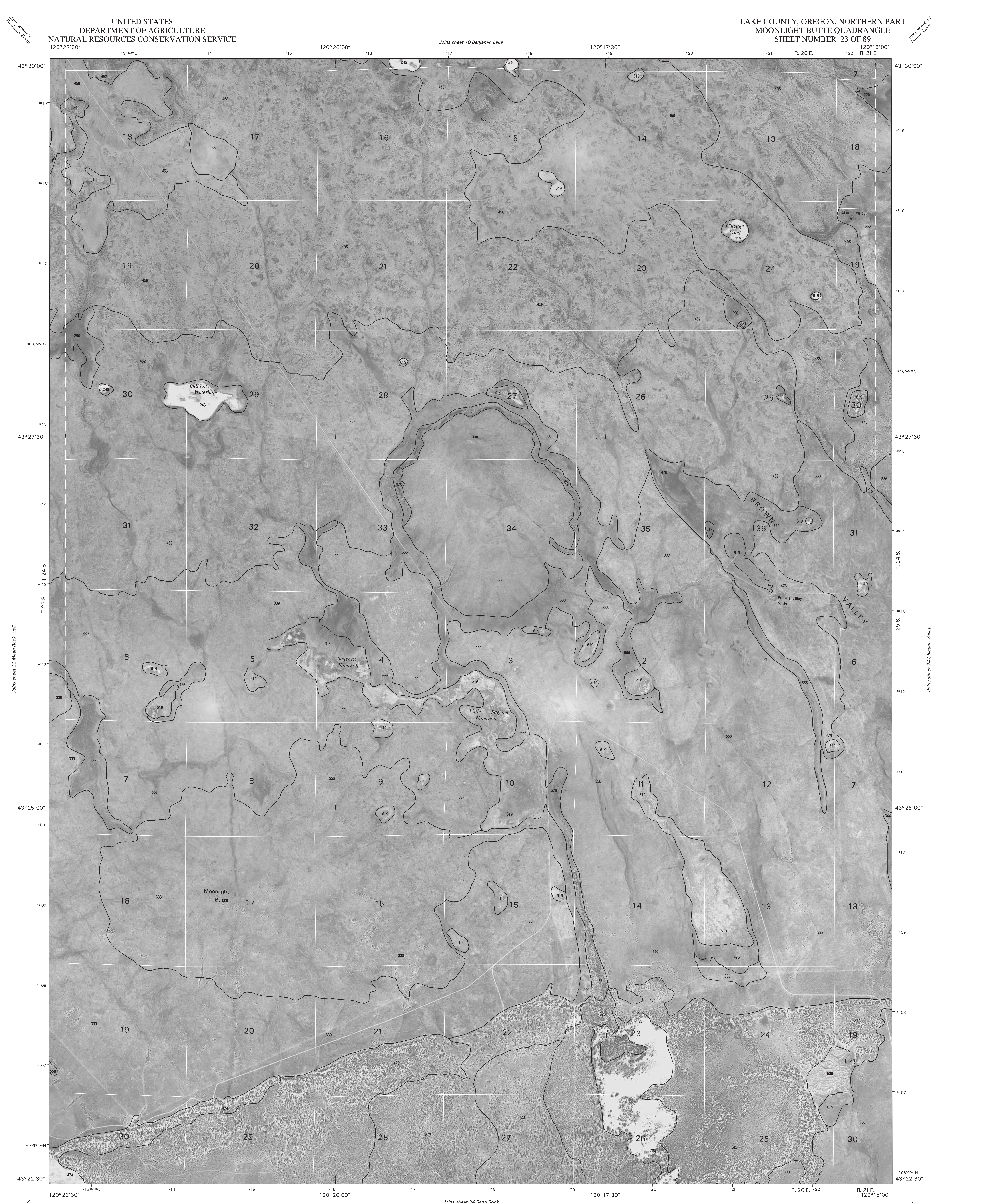
MEAN ROCK WELL, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 22 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

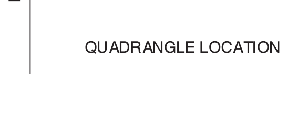
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
MOONLIGHT BUTTE QUADRANGLE
SHEET NUMBER 23 OF 89



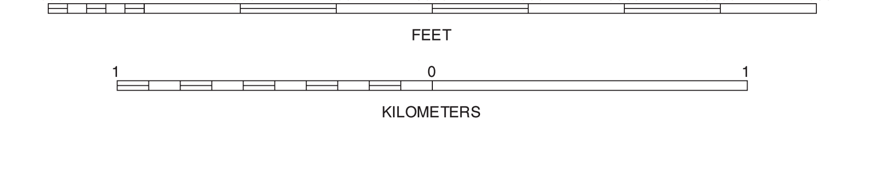
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



9	10	11
22		24
33	34	35

9 FREDERICK BUTTE
10 BENJAMIN LAKE
11 POTATO LAKE
22 MEAN ROCK WELL
24 CHICAGO VALLEY
33 FOSSIL LAKE
34 SAND ROCK
35 ELK BUTTE

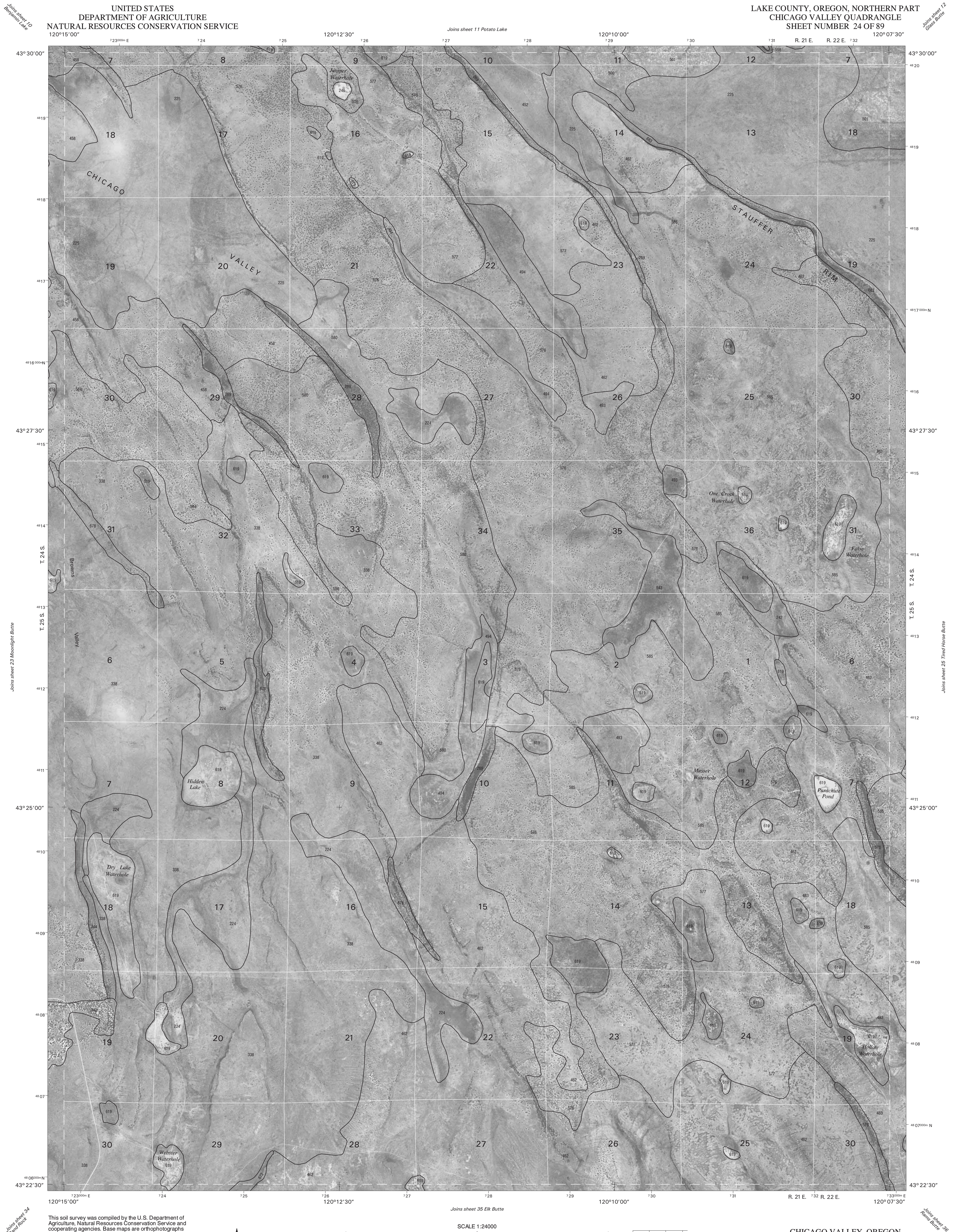
INDEX TO ADJOINING 7.5 MAPS

MOONLIGHT BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 23 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

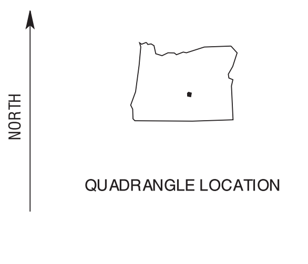
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
CHICAGO VALLEY QUADRANGLE
SHEET NUMBER 24 OF 89



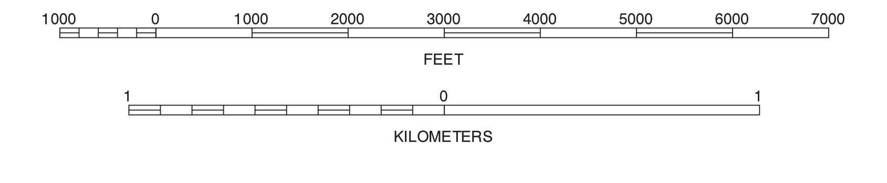
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

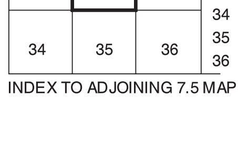
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





10 BENJAMIN LAKE
11 POTATO LAKE
12 GLASS BUTTE
23 MOONLIGHT BUTTE
25 TIRED HORSE BUTTE
34 SAND ROCK
35 ELK BUTTE
36 RAMS BUTTE

INDEX TO ADJOINING 7.5 MAPS

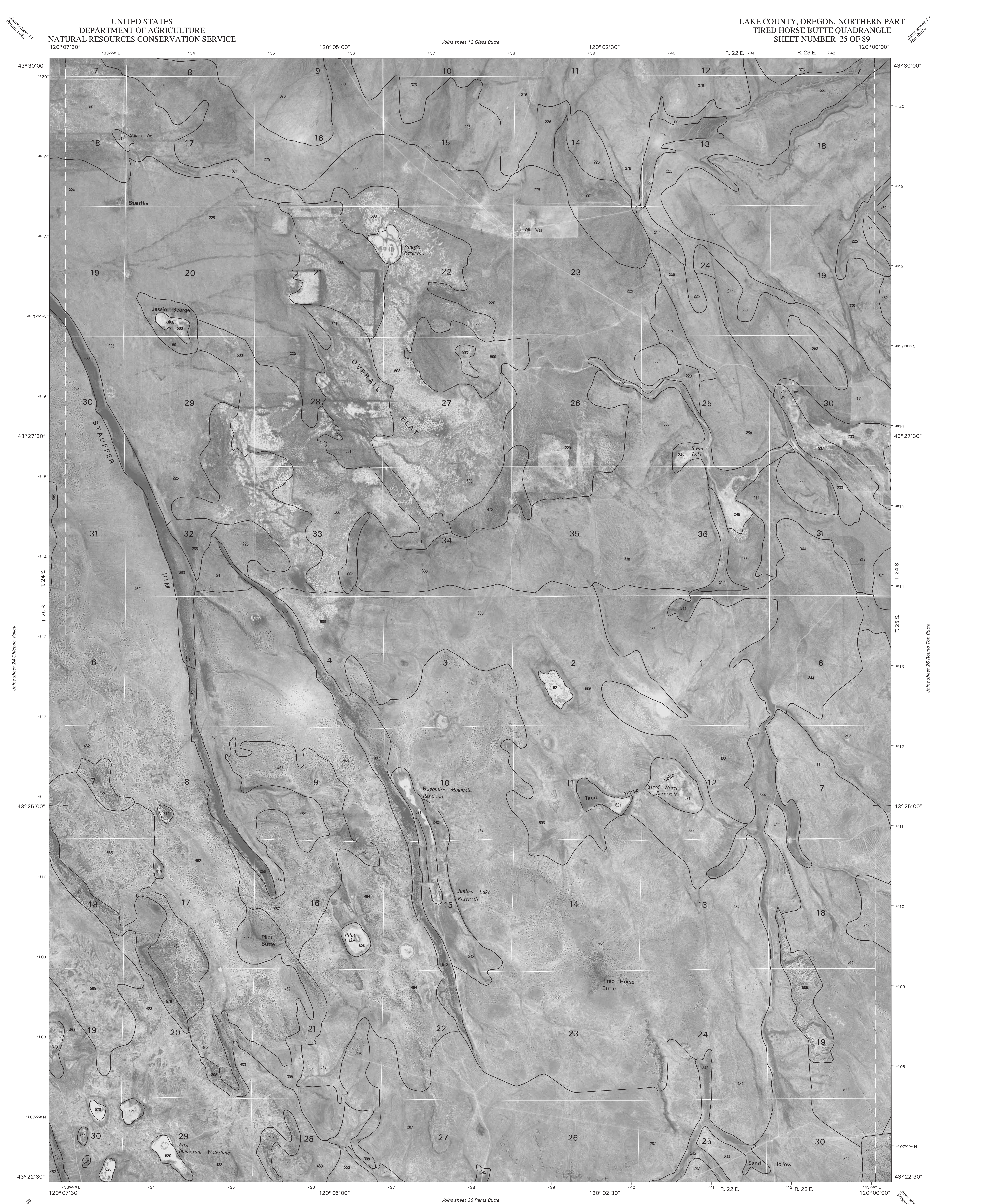
CHICAGO VALLEY, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 24 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

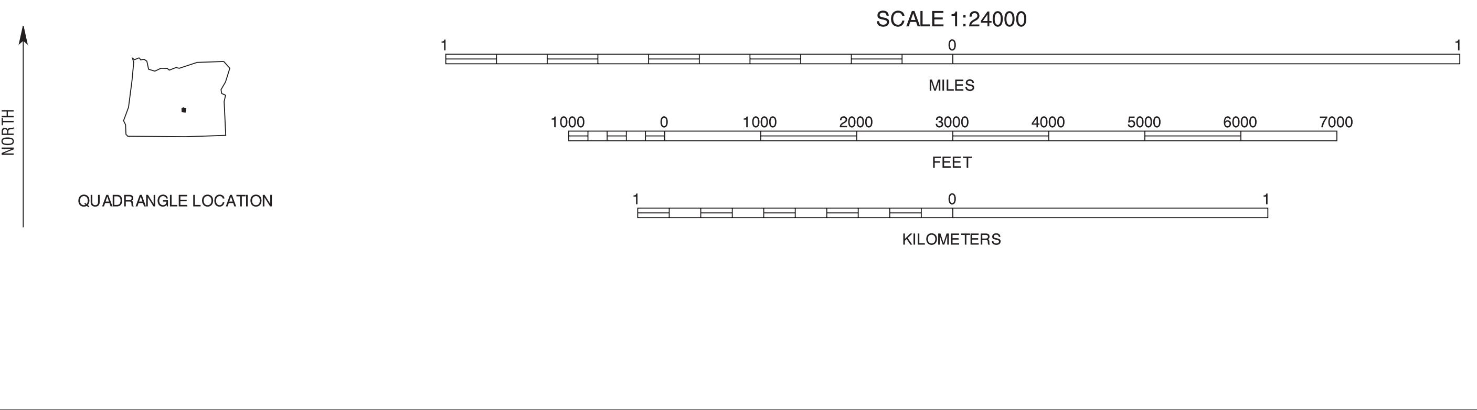
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
TIRED HORSE BUTTE QUADRANGLE
SHEET NUMBER 25 OF 89



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



11	12	13
24		26
35	36	37

11 POTATO LAKE
12 GLASS BUTTE
13 HAT BUTTE
24 CHICAGO VALLEY
26 ROUND TOP BUTTE
35 ELK BUTTE
36 RAMS BUTTE
37 WAGONTIRE MOUNTAIN WEST

INDEX TO ADJOINING 7.5 MAPS

TIRED HORSE BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 25 OF 89

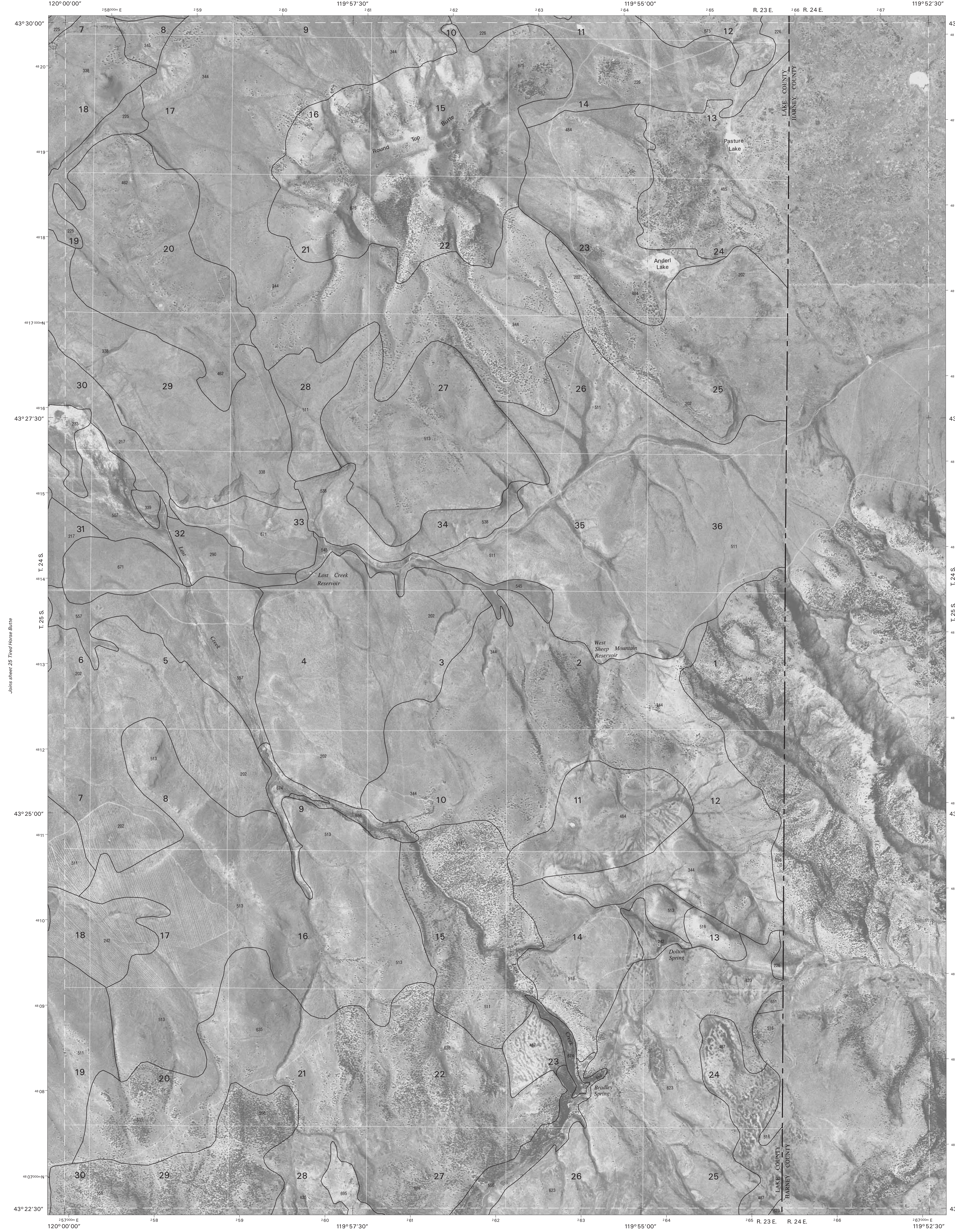
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
ROUND TOP BUTTE QUADRANGLE
SHEET NUMBER 26 OF 89

Joins sheet 12 Glass Butte

Joins sheet 13 Hat Butte



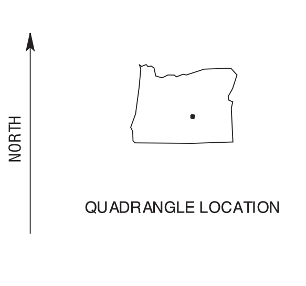
Joins sheet 25 Tired Horse Butte

Joins sheet 37 Wagontire Mountain West

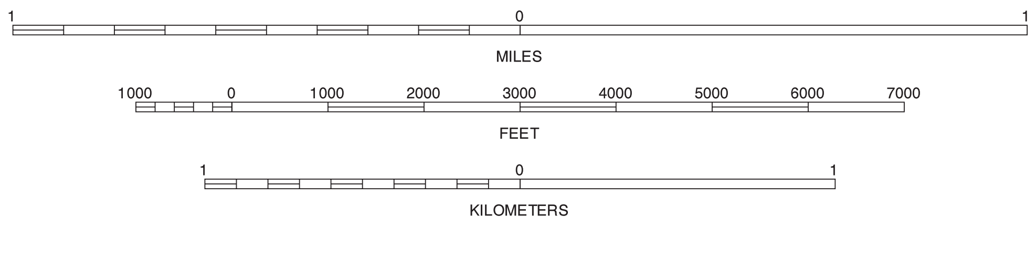
Joins sheet 36 Rams Butte

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



SCALE 1:24000



12	13	
25		
36	37	

12 GLASS BUTTE
13 HAT BUTTE
25 TIRED HORSE BUTTE
36 RAMS BUTTE
37 WAGONTIRE MOUNTAIN WEST

INDEX TO ADJOINING 7.5 MAPS

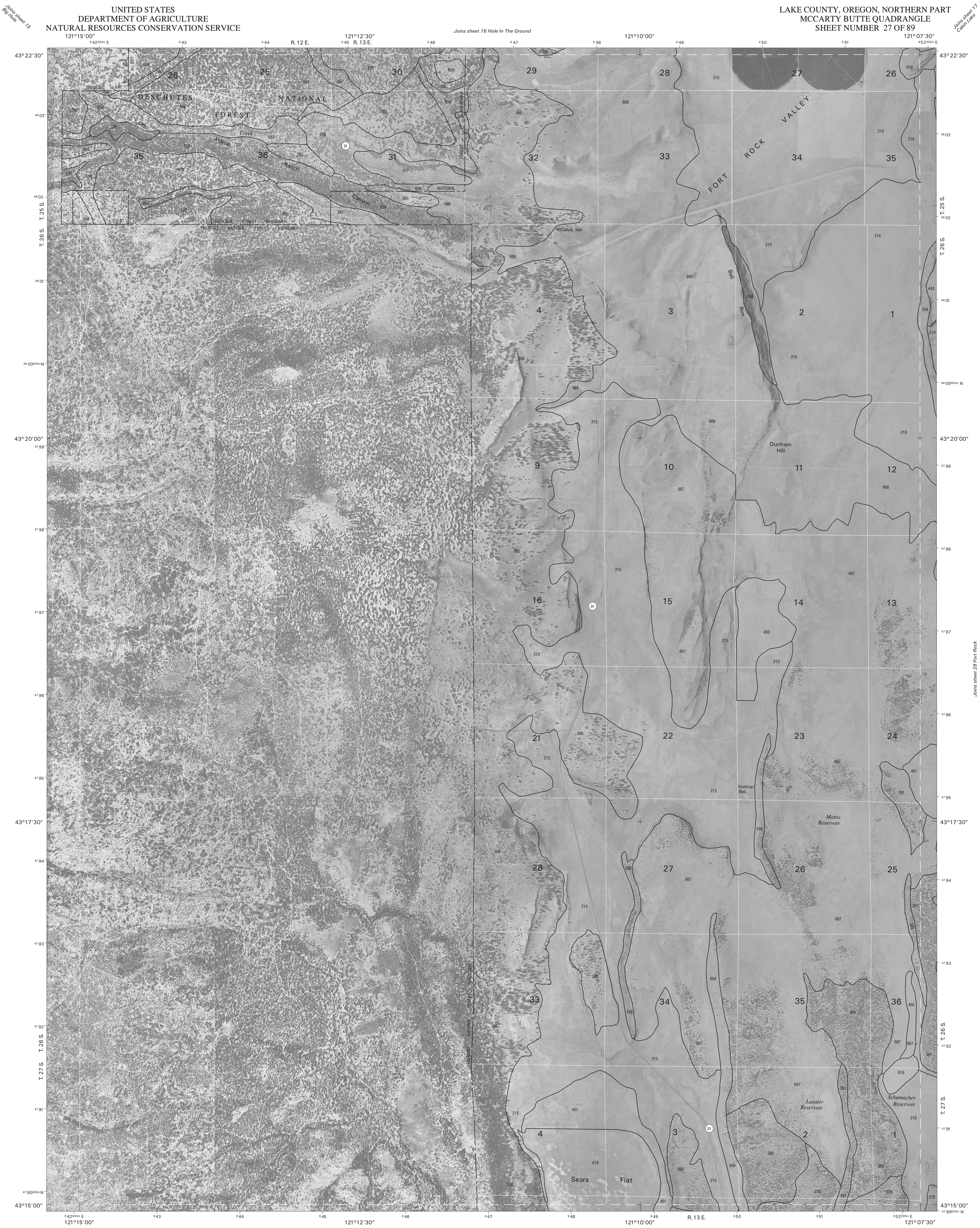
ROUND TOP BUTTE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 26 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

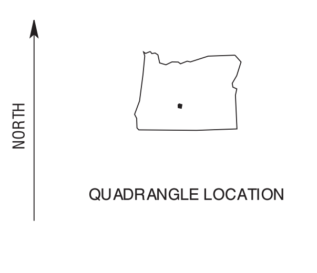
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
MCCARTY BUTTE QUADRANGLE
SHEET NUMBER 27 OF 89

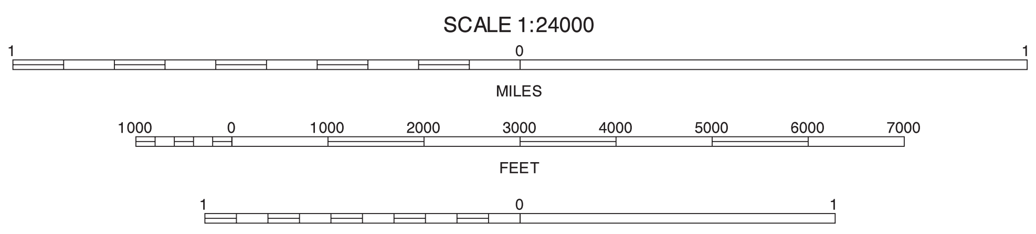


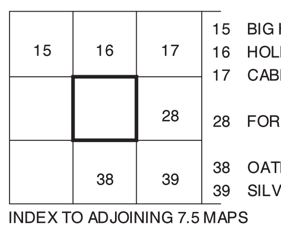
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION





15 BIG HOLE
16 HOLE IN THE GROUND
17 CABIN LAKE
28 FORT ROCK
38 OATMAN FLAT
39 SILVER LAKE

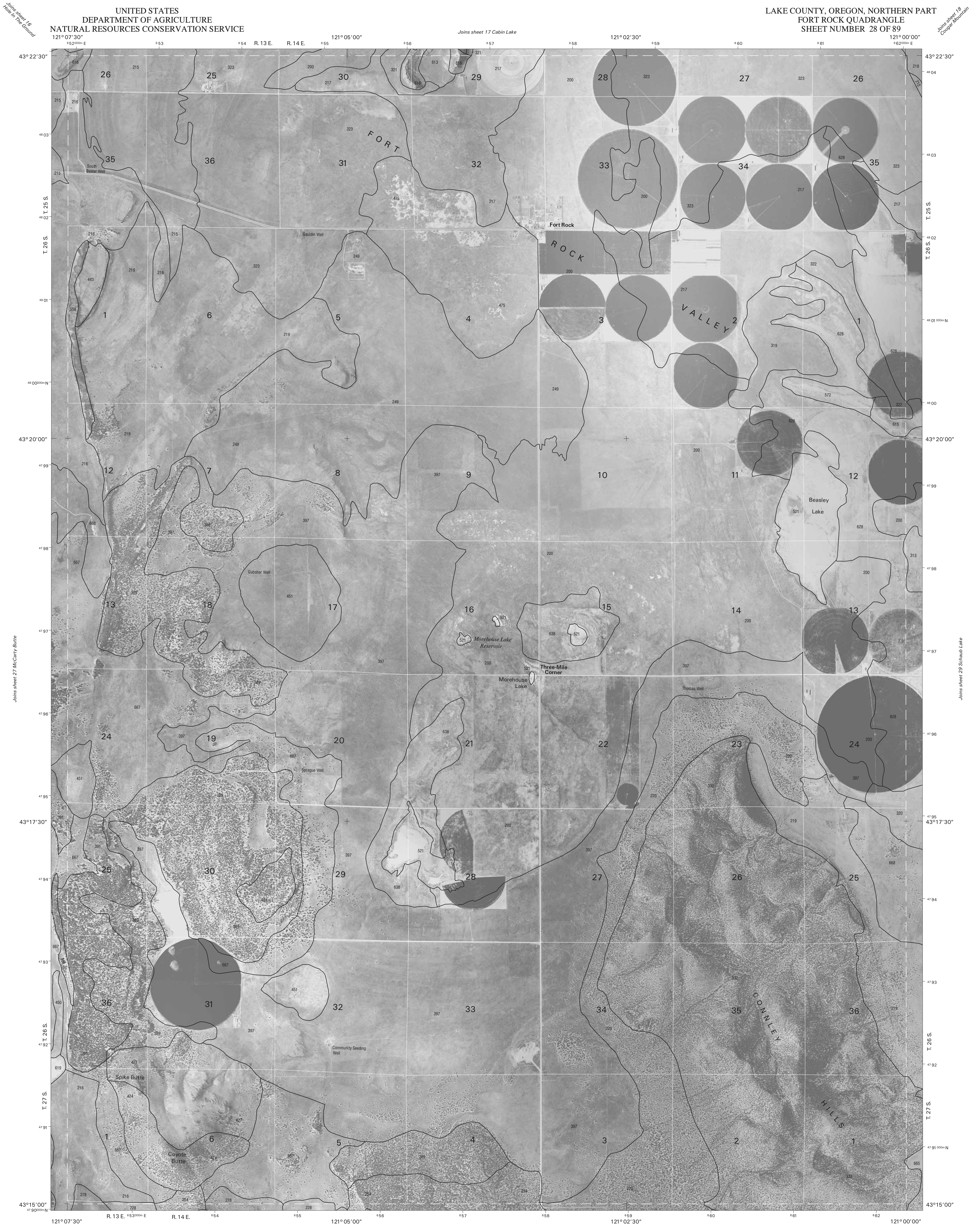
INDEX TO ADJOINING 7.5 MAPS

MCCARTY BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 27 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

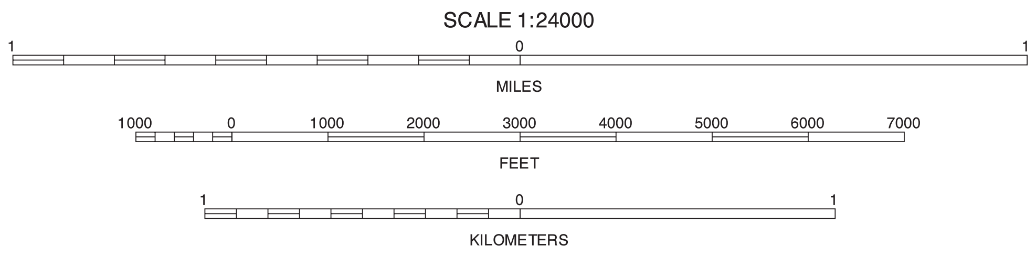
LAKE COUNTY, OREGON, NORTHERN PART
FORT ROCK QUADRANGLE
SHEET NUMBER 28 OF 89

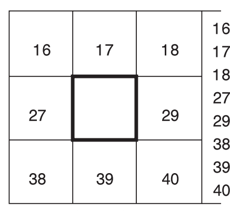


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION





16 HOLE IN THE GROUND
17 CABIN LAKE
18 COUGAR MOUNTAIN
27 MCCARTY BUTTE
29 SCHAUB LAKE
38 OATMAN FLAT
39 SILVER LAKE
40 TUFF BUTTE

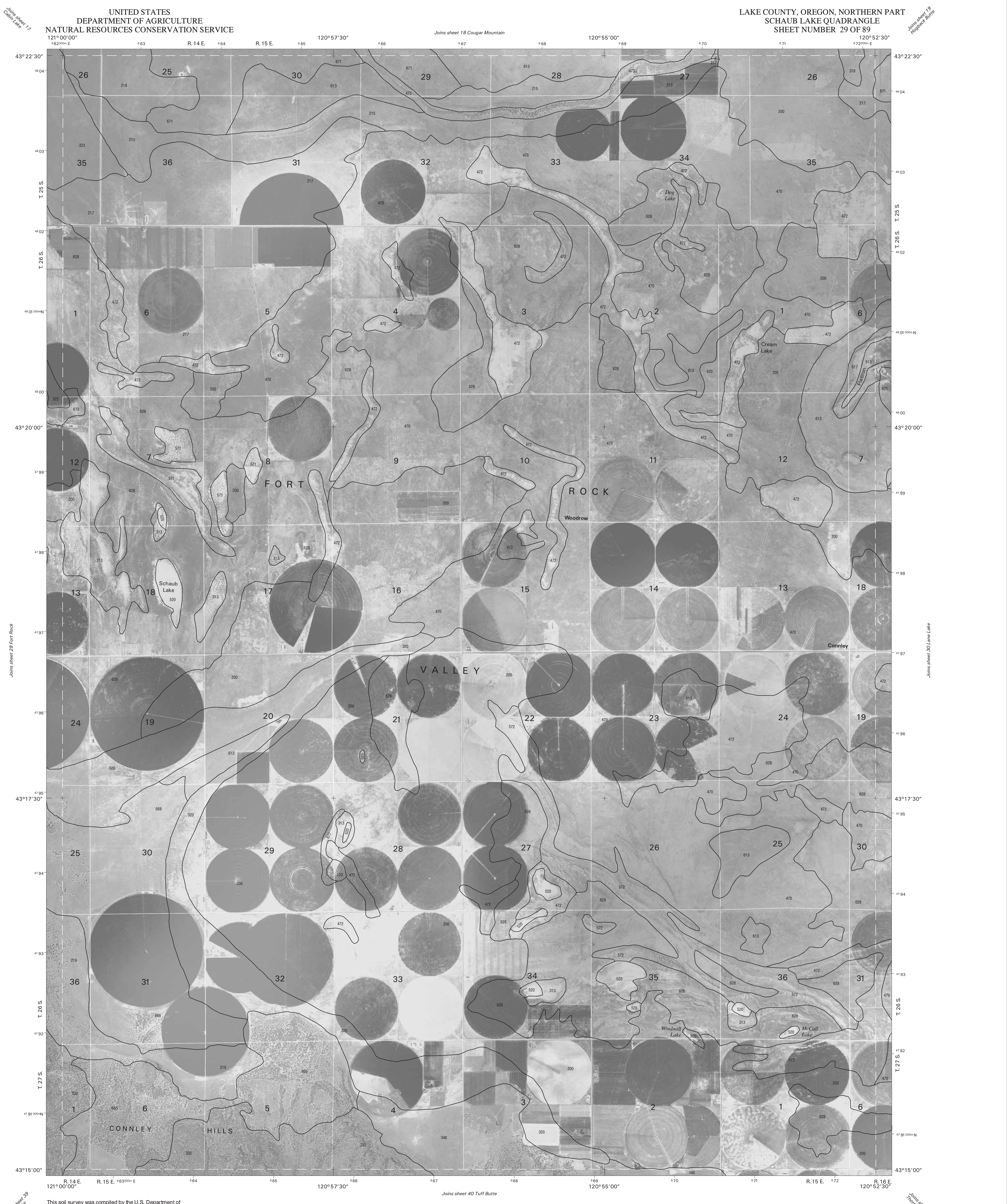
INDEX TO ADJOINING 7.5 MAPS

FORT ROCK, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 28 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

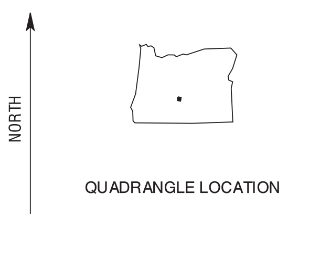
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SCHAUB LAKE QUADRANGLE
SHEET NUMBER 29 OF 89



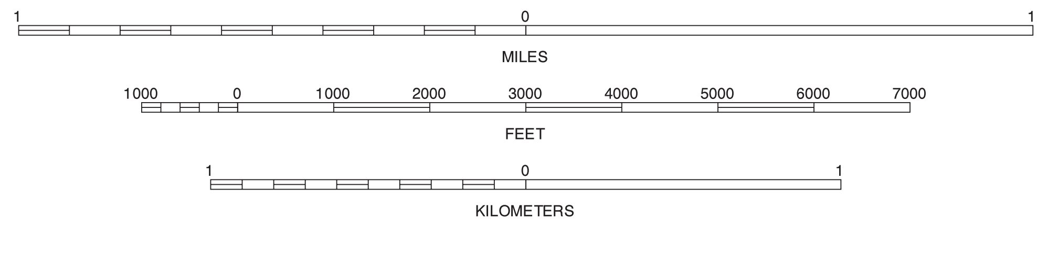
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



17	18	19
28		30
39	40	41

17 CABIN LAKE
18 COUGAR MOUNTAIN
19 HOGBACK BUTTE
28 FORT ROCK
30 LANE LAKE
39 SILVER LAKE
40 TUFF BUTTE
41 THORN LAKE

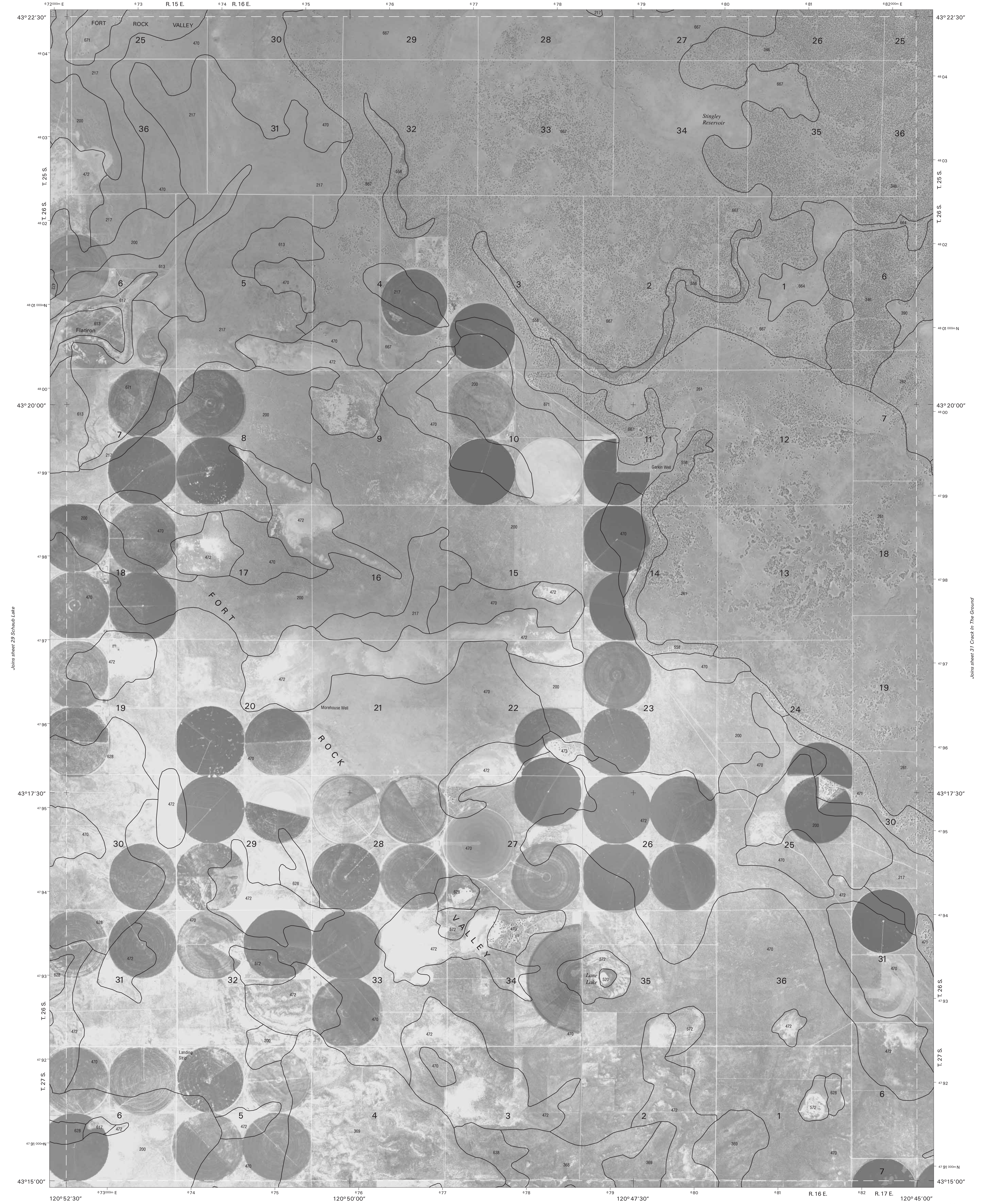
INDEX TO ADJOINING 7.5 MAPS

SCHAUB LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 29 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
LANE LAKE QUADRANGLE
SHEET NUMBER 30 OF 89

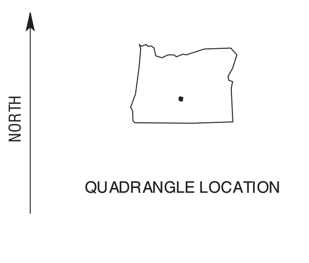


Joins sheet 40 Tuff Butte

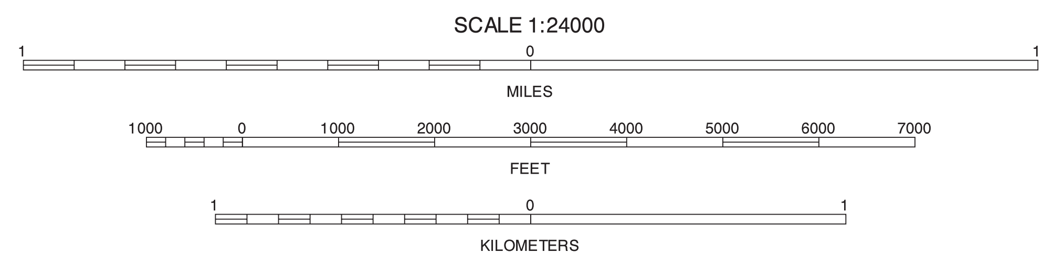
Joins sheet 42 Christmas Valley

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



18	19	20
29		31
40	41	42

18 COUGAR MOUNTAIN
19 HOGBACK BUTTE
20 JACKS PLACE
29 SCHAUB LAKE
31 CRACK IN THE GROUND
40 TUFF BUTTE
41 THORN LAKE
42 CHRISTMAS VALLEY

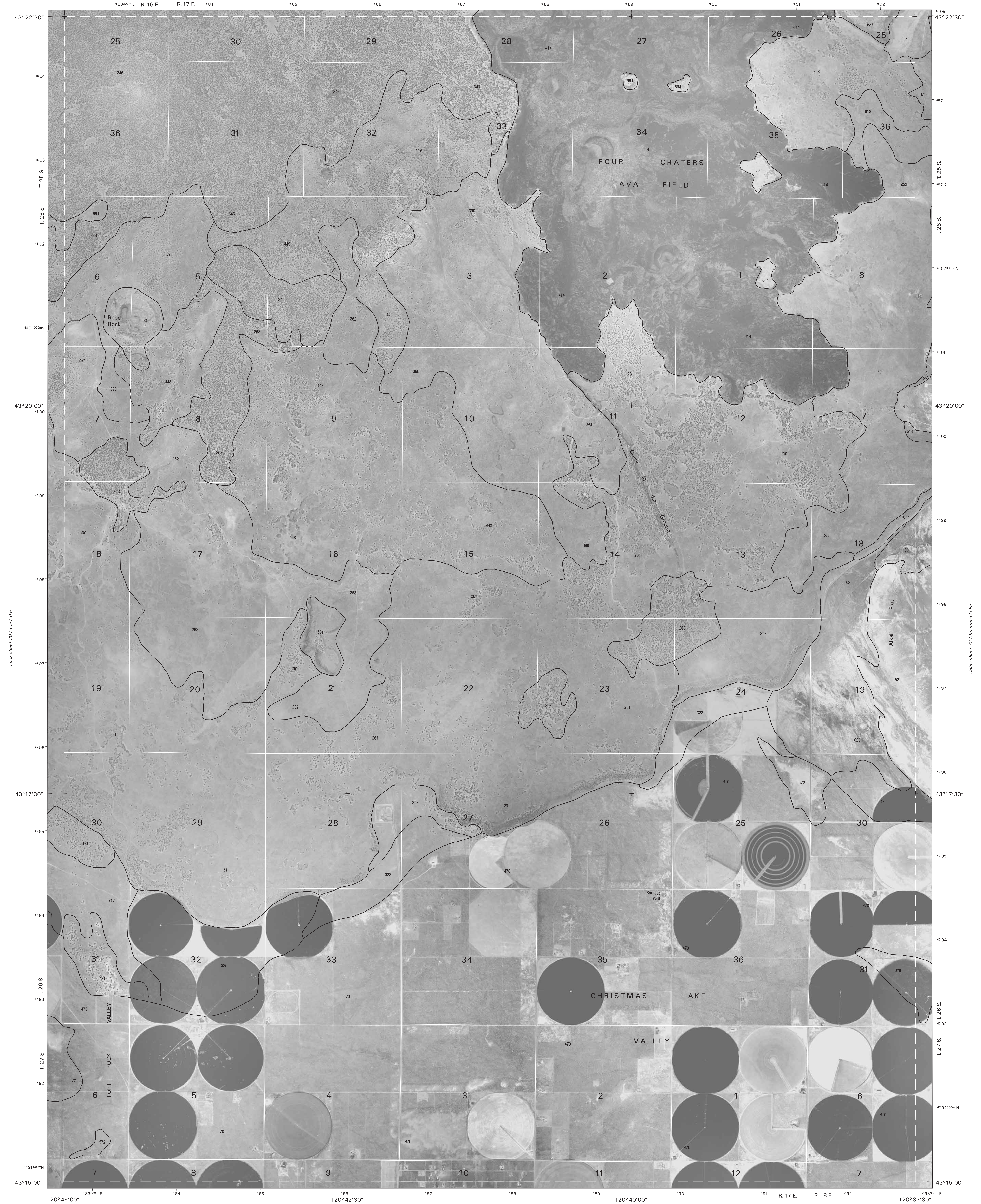
INDEX TO ADJOINING 7.5 MAPS

LANE LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 30 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

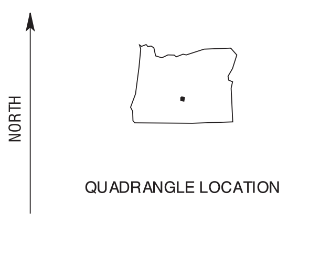
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

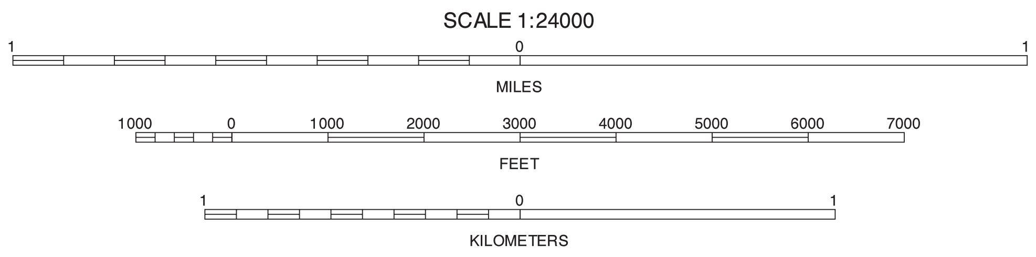
LAKE COUNTY, OREGON, NORTHERN PART
CRACK IN THE GROUND QUADRANGLE
SHEET NUMBER 31 OF 89

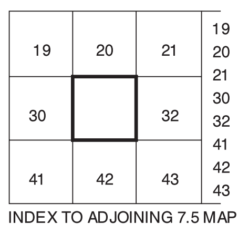


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.







19 HOGBACK BUTTE
20 JACKS PLACE
21 PETERS CREEK SINK
30 LANE LAKE
32 CHRISTMAS LAKE
41 THORN LAKE
42 CHRISTMAS VALLEY
43 FANDANGO CANYON

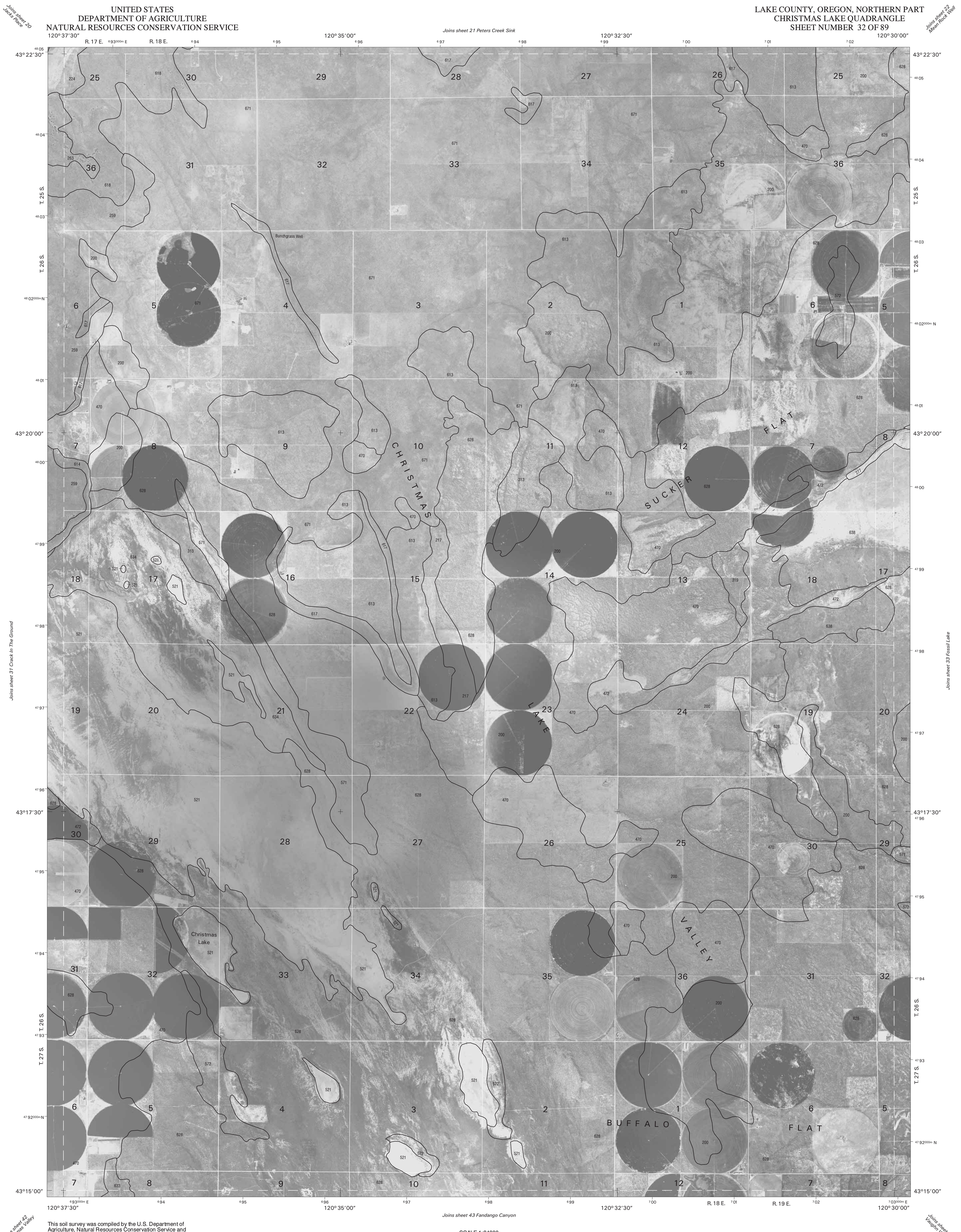
INDEX TO ADJOINING 7.5 MAPS

CRACK IN THE GROUND, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 31 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

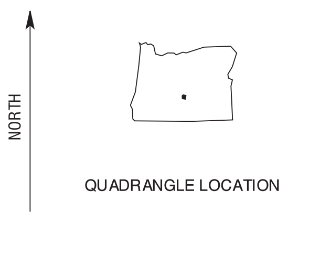
LAKE COUNTY, OREGON, NORTHERN PART
CHRISTMAS LAKE QUADRANGLE
SHEET NUMBER 32 OF 89



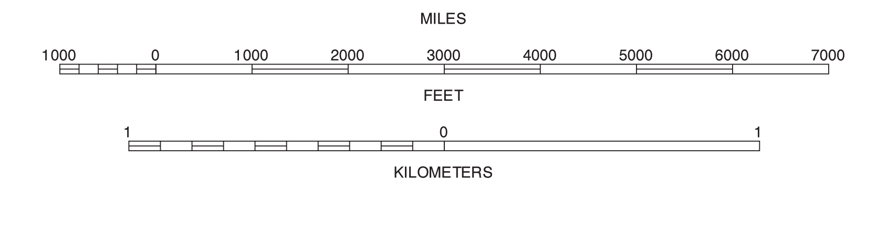
Joins sheet 20 Jacks Place
Joins sheet 21 Peters Creek Sink
Joins sheet 22 Mean Rock Well
Joins sheet 31 Crack In The Ground
Joins sheet 33 Fossil Lake
Joins sheet 42 Christmas Valley
Joins sheet 43 Fandango Canyon
Joins sheet 44 Vaughn Well
120° 37′30″
120° 35′00″
120° 32′30″
120° 30′00″
43° 22′30″
43° 20′00″
43° 17′30″
43° 15′00″
R. 17 E.
R. 18 E.
R. 19 E.
T. 25 S.
T. 26 S.
T. 27 S.
Bunchgrass Well
CHRISTMAS
LAKE
SUCKER
FLAT
VALLEY
Christmas Lake
BUFFALO
FLAT

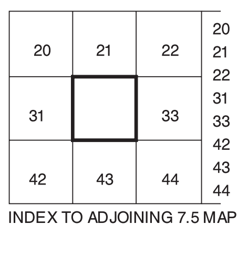
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION





20	JACKS PLACE
21	PETERS CREEK SINK
22	MEAN ROCK WELL
31	CRACK IN THE GROUND
33	FOSSIL LAKE
42	CHRISTMAS VALLEY
43	FANDANGO CANYON
44	VAUGHN WELL

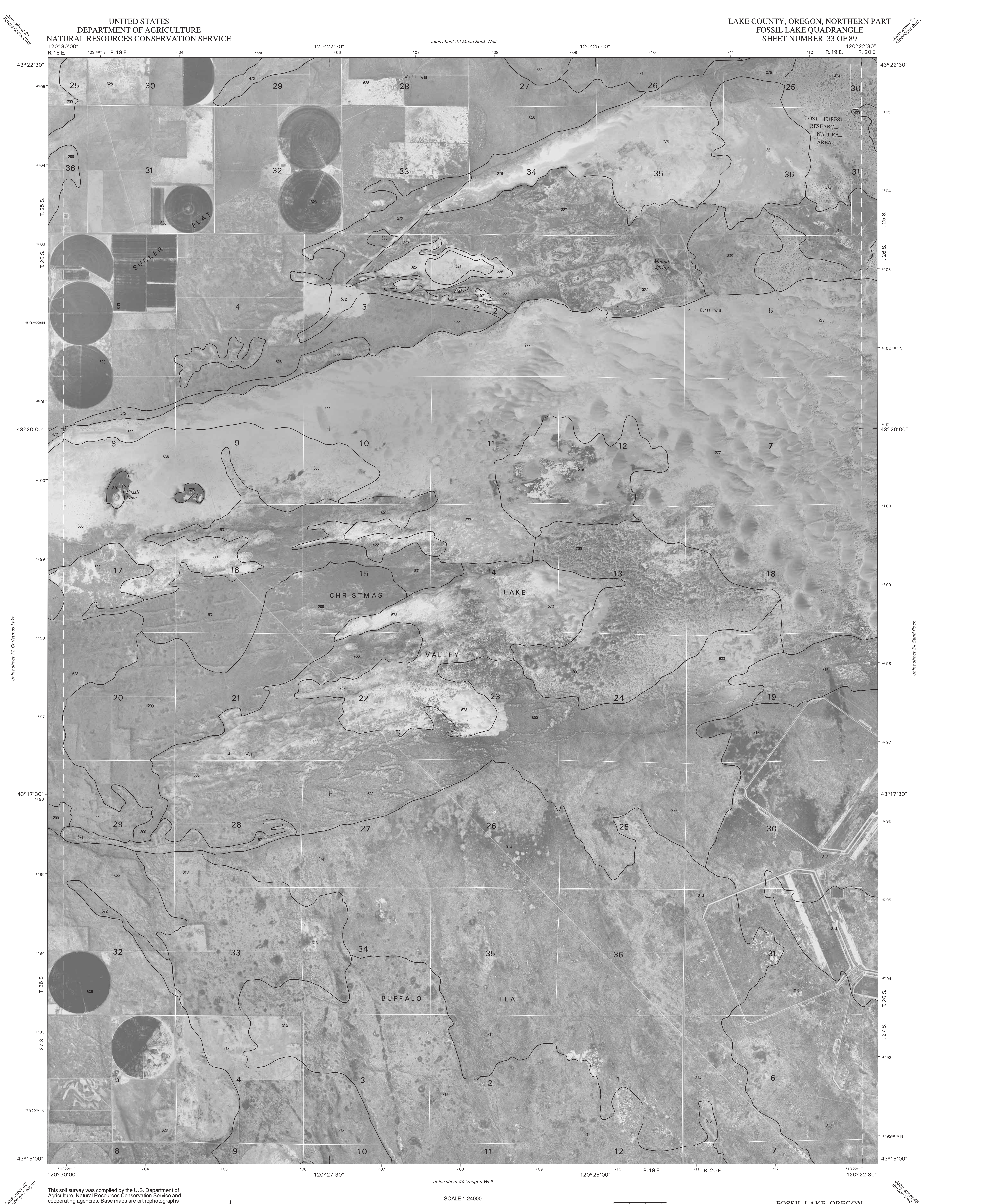
INDEX TO ADJOINING 7.5 MAPS

CHRISTMAS LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 32 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
FOSSIL LAKE QUADRANGLE
SHEET NUMBER 33 OF 89

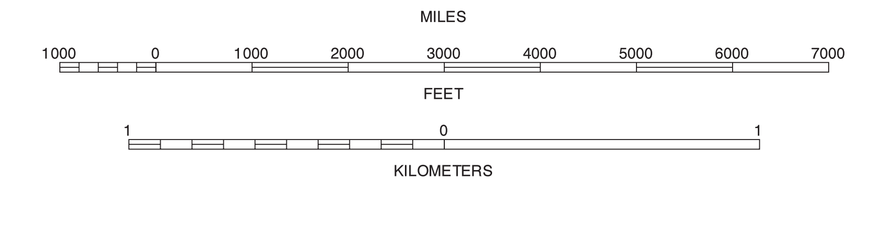


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION

SCALE 1:24000



21	22	23
32		34
43	44	45

21 PETERS CREEK SINK
22 MEAN ROCK WELL
23 MOONLIGHT BUTTE
32 CHRISTMAS LAKE
34 SAND ROCK
43 FANDANGO CANYON
44 VAUGHN WELL
45 BUFFALO WELL

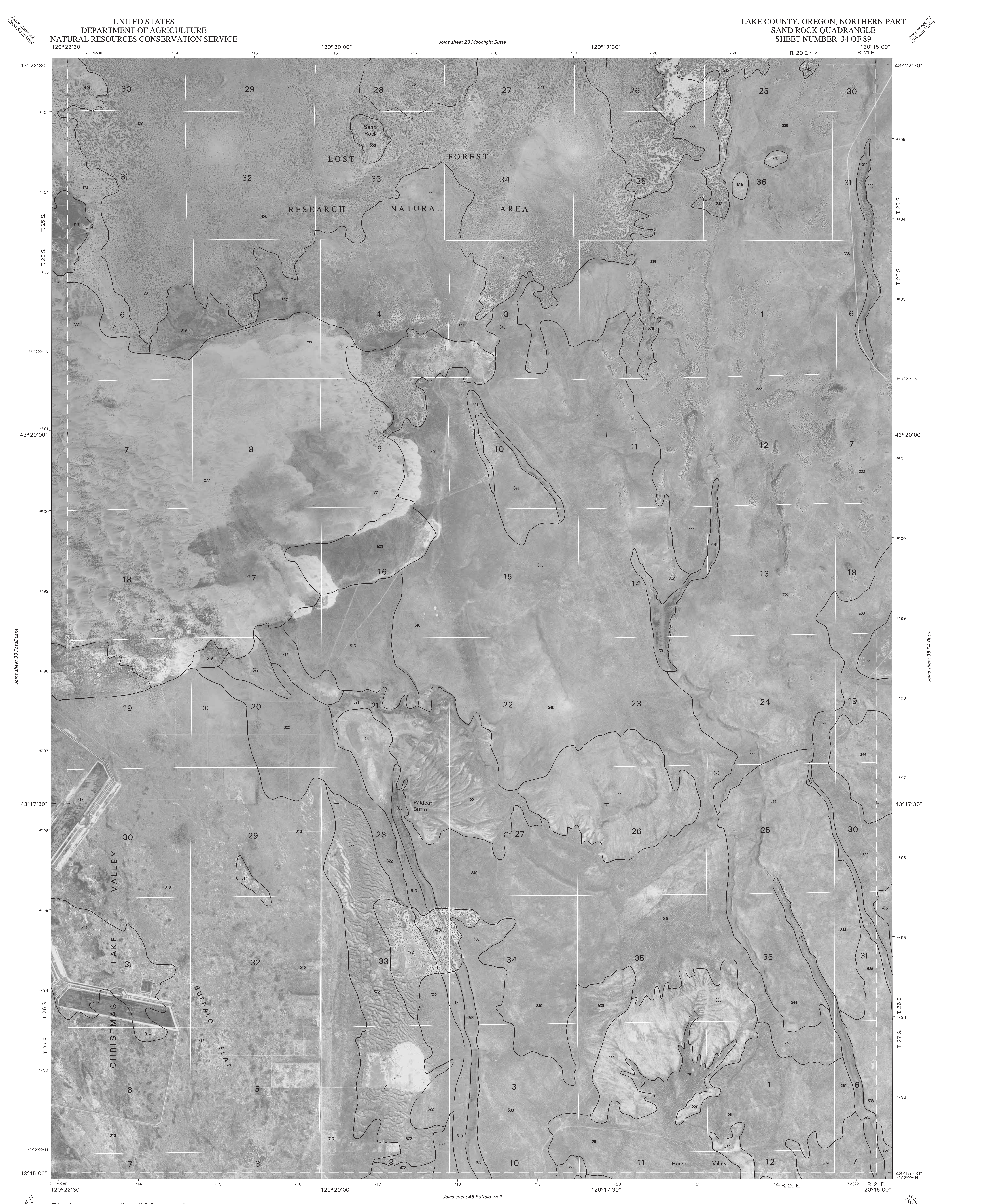
INDEX TO ADJOINING 7.5 MAPS

FOSSIL LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 33 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

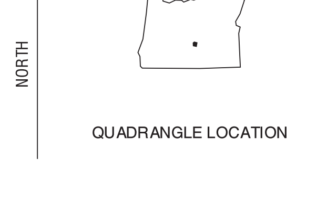
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SAND ROCK QUADRANGLE
SHEET NUMBER 34 OF 89

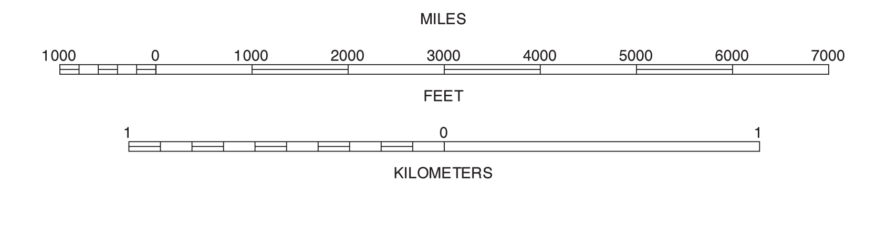


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



22	23	24
33		35
44	45	46

22 MEAN ROCK WELL
23 MOONLIGHT BUTTE
24 CHICAGO VALLEY
33 FOSSIL LAKE
35 ELK BUTTE
44 VAUGHN WELL
45 BUFFALO WELL
46 HORSE MOUNTAIN

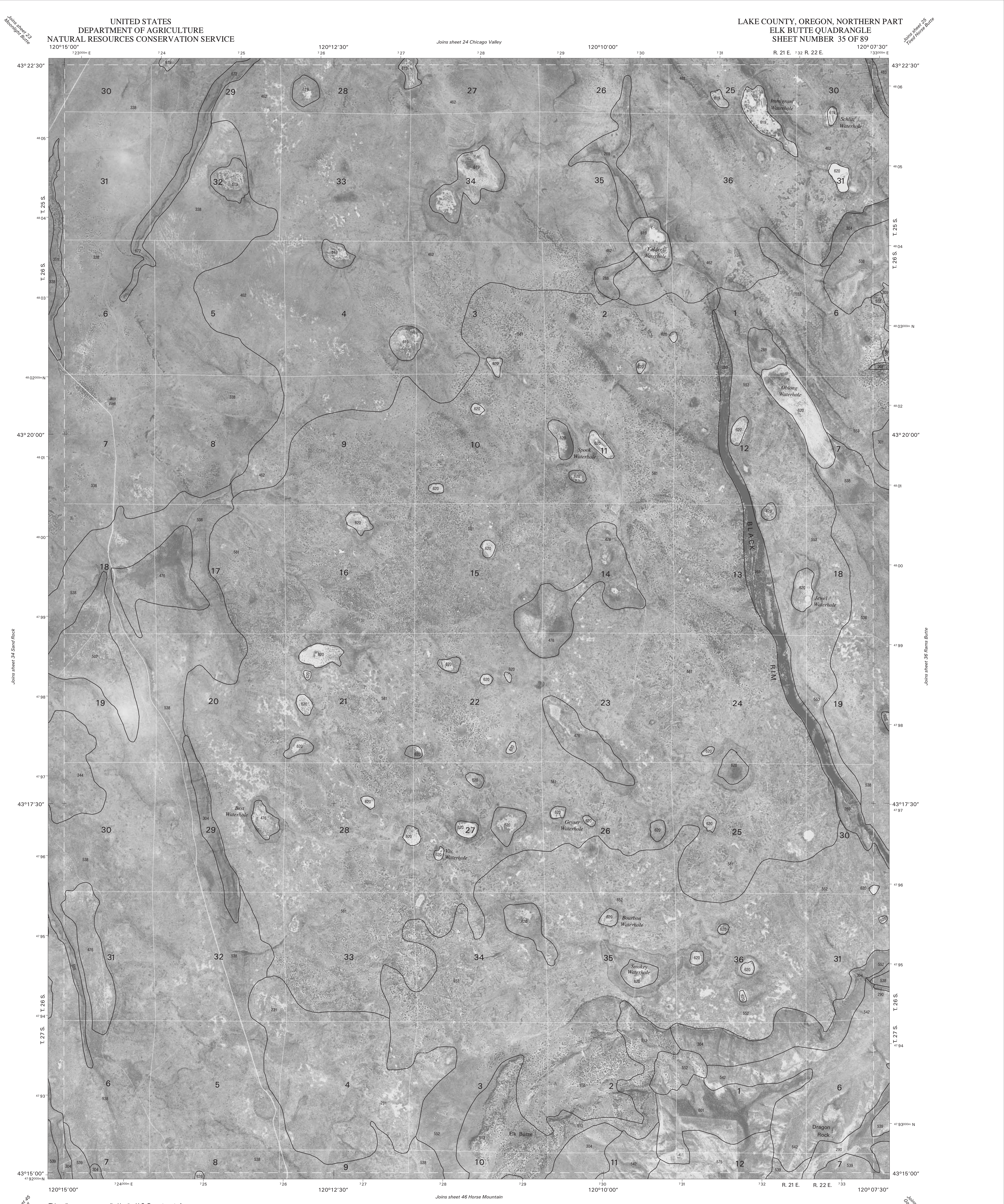
INDEX TO ADJOINING 7.5 MAPS

SAND ROCK, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 34 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
ELK BUTTE QUADRANGLE
SHEET NUMBER 35 OF 89



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

23 MOONLIGHT BUTTE
24 CHICAGO VALLEY
25 TIRED HORSE BUTTE
34 SAND ROCK
36 RAMS BUTTE
45 BUFFALO WELL
46 HORSE MOUNTAIN
47 GOODRICH WELL

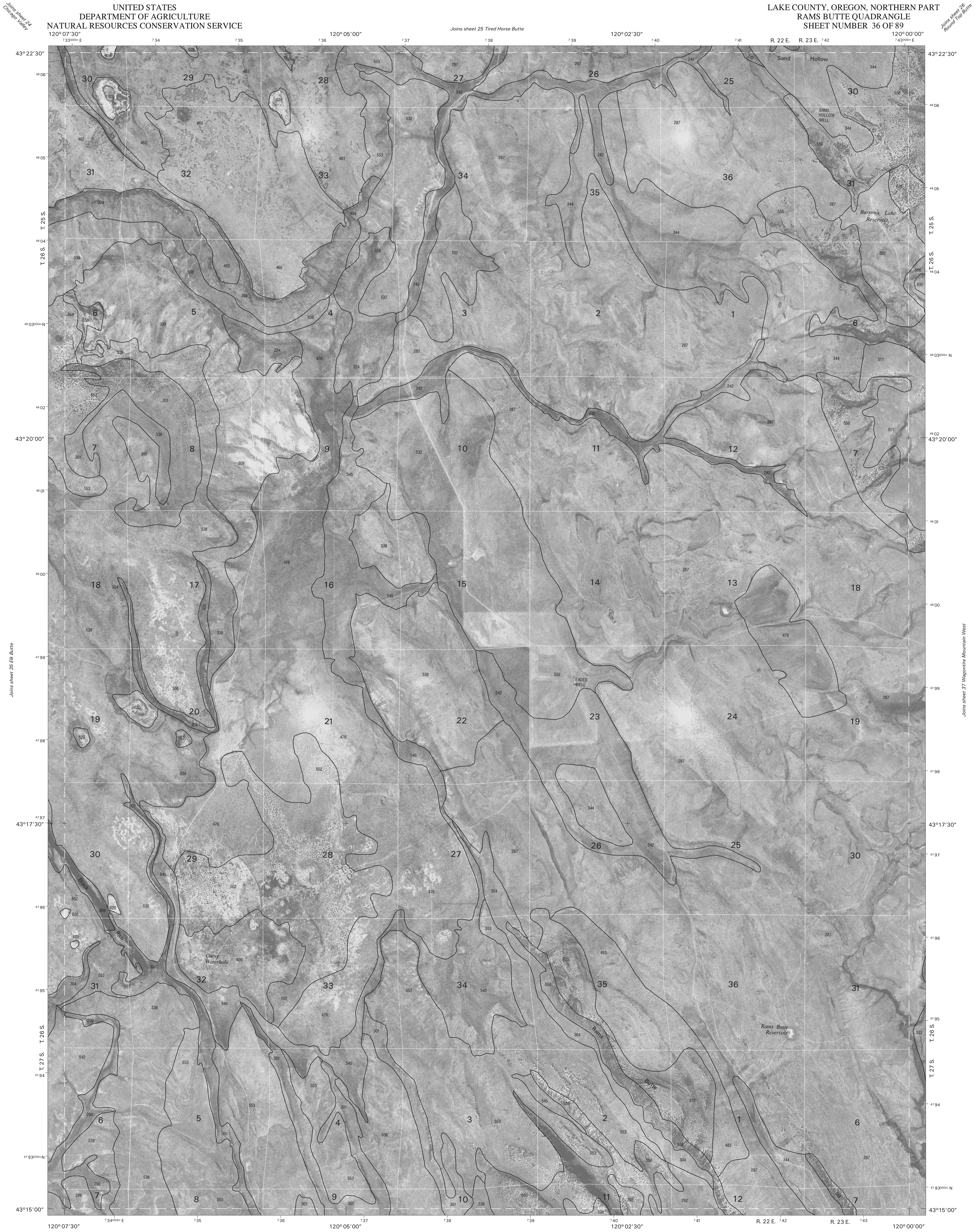
INDEX TO ADJOINING 7.5 MAPS

ELK BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 35 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
RAMS BUTTE QUADRANGLE
SHEET NUMBER 36 OF 89

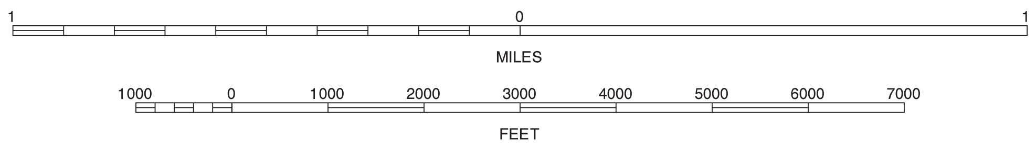


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION

SCALE 1:24000



24	25	26
35		37
46	47	48

24 CHICAGO VALLEY
25 TIRED HORSE BUTTE
26 ROUND TOP BUTTE
35 ELK BUTTE
37 WAGONTIRE MOUNTAIN WEST
46 HORSE MOUNTAIN
47 GOODRICH WELL
48 LOCUST BUTTE

INDEX TO ADJOINING 7.5 MAPS

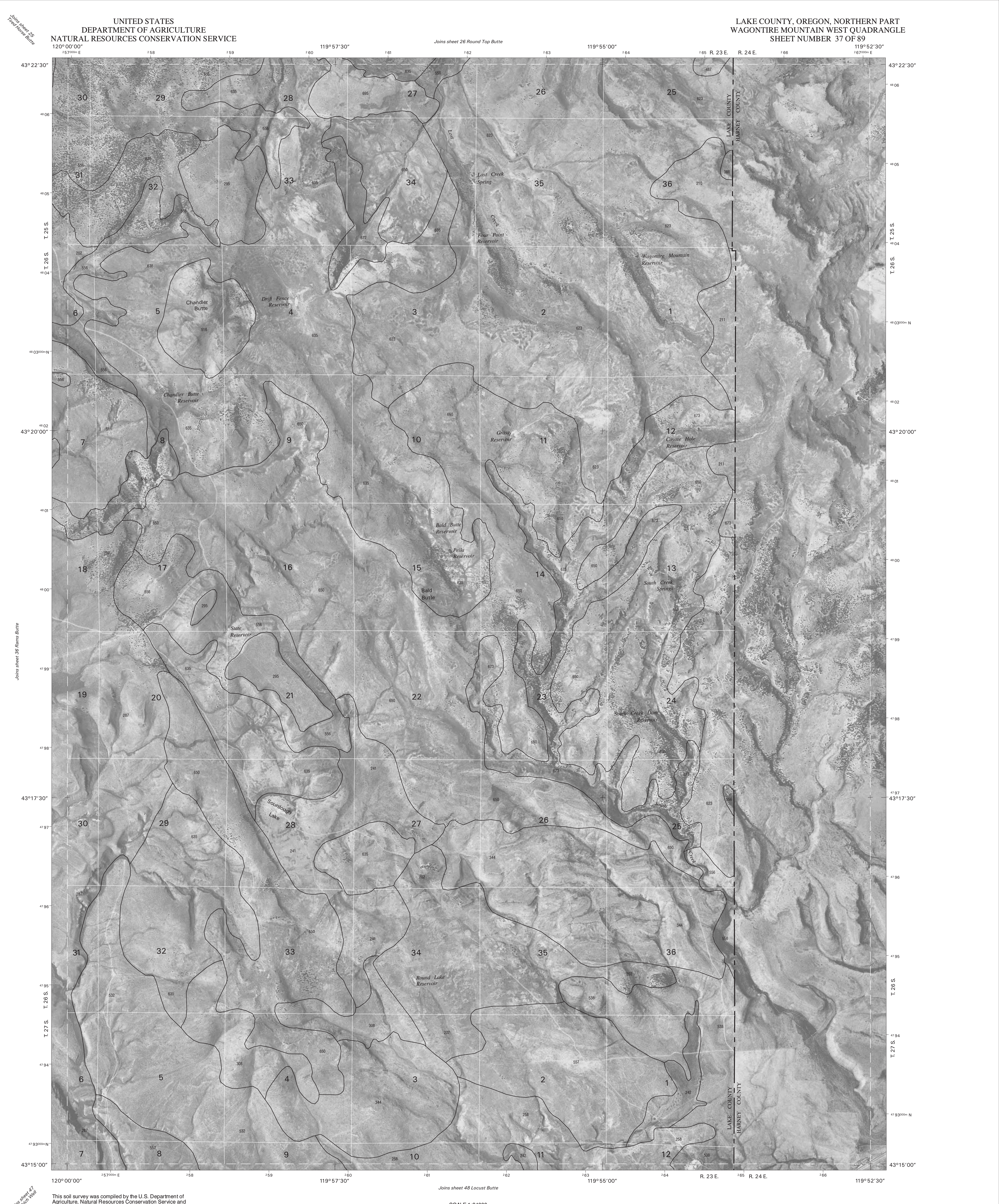
RAMS BUTTE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 36 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

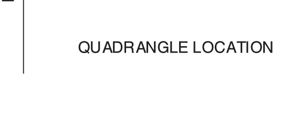
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
WAGONTIRE MOUNTAIN WEST QUADRANGLE
SHEET NUMBER 37 OF 89



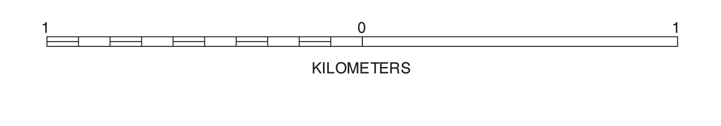
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



MILES

FEET

KILOMETERS

25 TIRED HORSE BUTTE
26 ROUND TOP BUTTE
36 RAMS BUTTE
47 GOODRICH WELL
48 LOCUST BUTTE

INDEX TO ADJOINING 7.5 MAPS

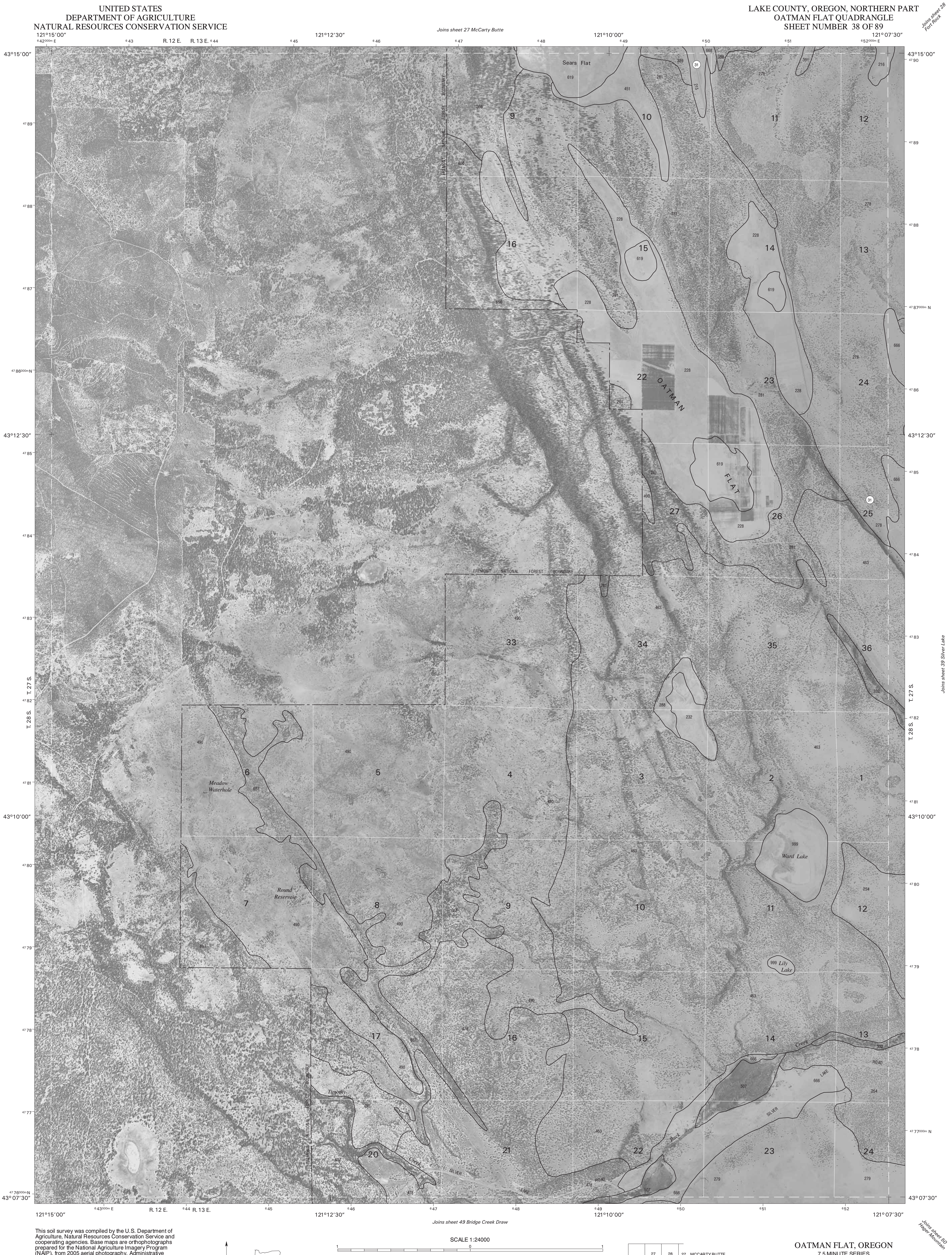
WAGONTIRE MOUNTAIN WEST, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 37 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

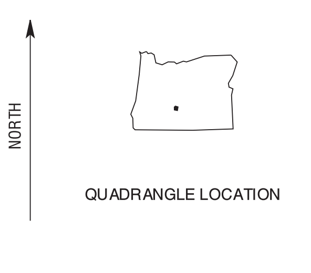
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
OATMAN FLAT QUADRANGLE
SHEET NUMBER 38 OF 89

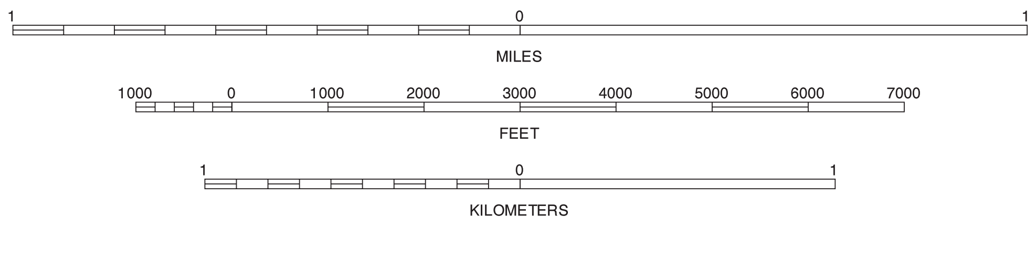


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



	27	28
	■	39
	49	50

27 MCCARTY BUTTE
28 FORT ROCK
39 SILVER LAKE
49 BRIDGE CREEK DRAW
50 HAGER MOUNTAIN

INDEX TO ADJOINING 7.5 MAPS

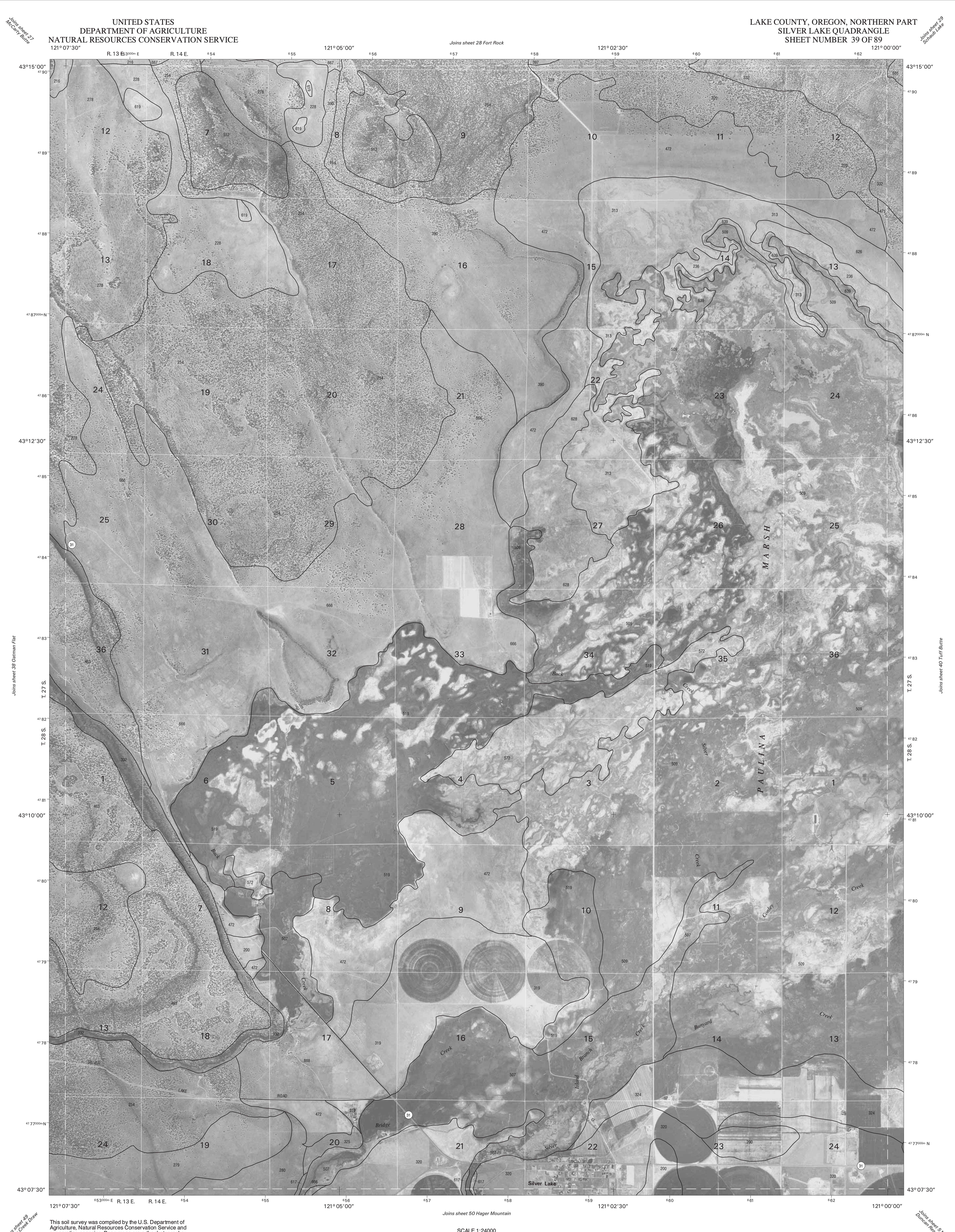
OATMAN FLAT, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 38 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

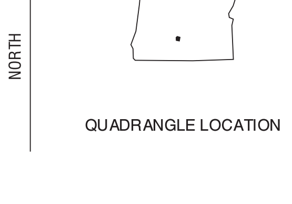
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SILVER LAKE QUADRANGLE
SHEET NUMBER 39 OF 89

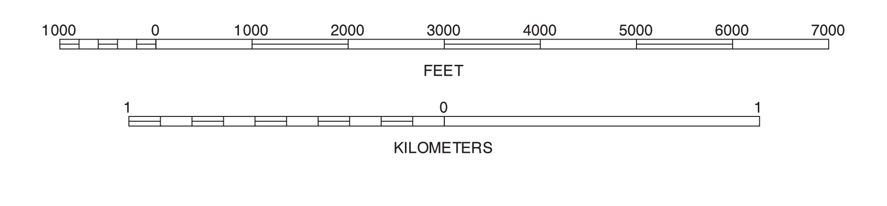


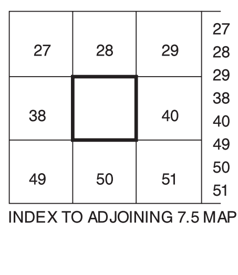
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION





27 MCCARTY BUTTE
28 FORT ROCK
29 SCHAUB LAKE
38 OATMAN FLAT
40 TUFF BUTTE
49 BRIDGE CREEK DRAW
50 HAGER MOUNTAIN
51 DUNCAN RESERVOIR

INDEX TO ADJOINING 7.5 MAPS

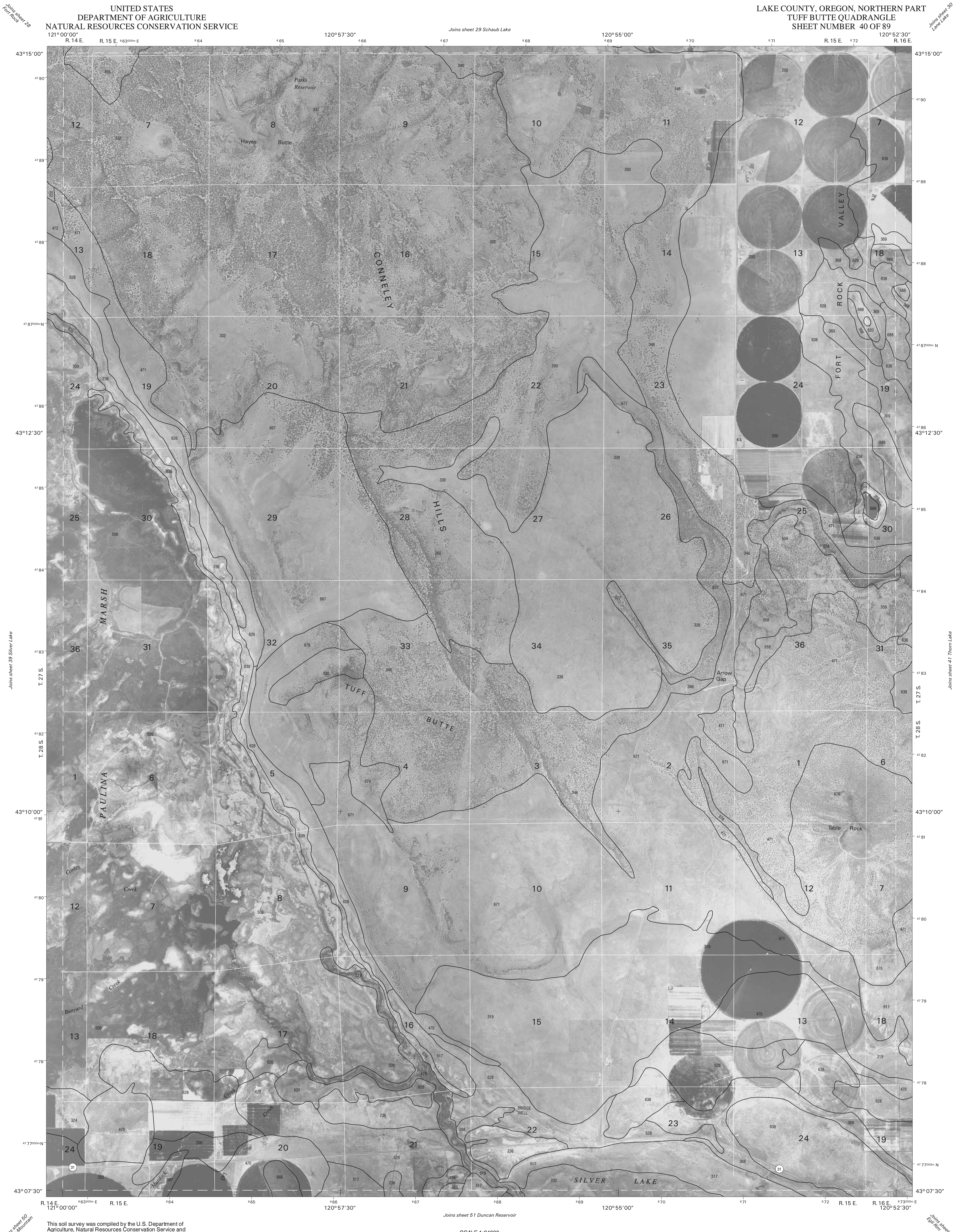
SILVER LAKE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 39 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

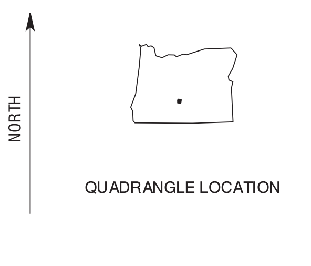
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
TUFF BUTTE QUADRANGLE
SHEET NUMBER 40 OF 89



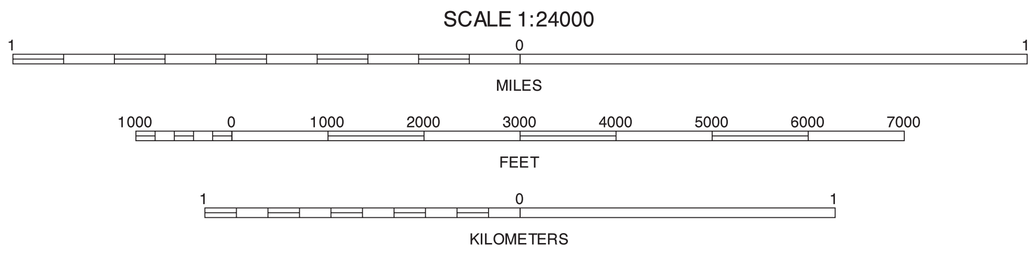
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



28	29	30
39		41
50	51	52

28 FORT ROCK
29 SCHAUB LAKE
30 LANE LAKE
39 SILVER LAKE
41 THORN LAKE
50 HAGER MOUNTAIN
51 DUNCAN RESERVOIR
52 EGLI RIM

INDEX TO ADJOINING 7.5 MAPS

TUFF BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 40 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
THORN LAKE QUADRANGLE
SHEET NUMBER 41 OF 89

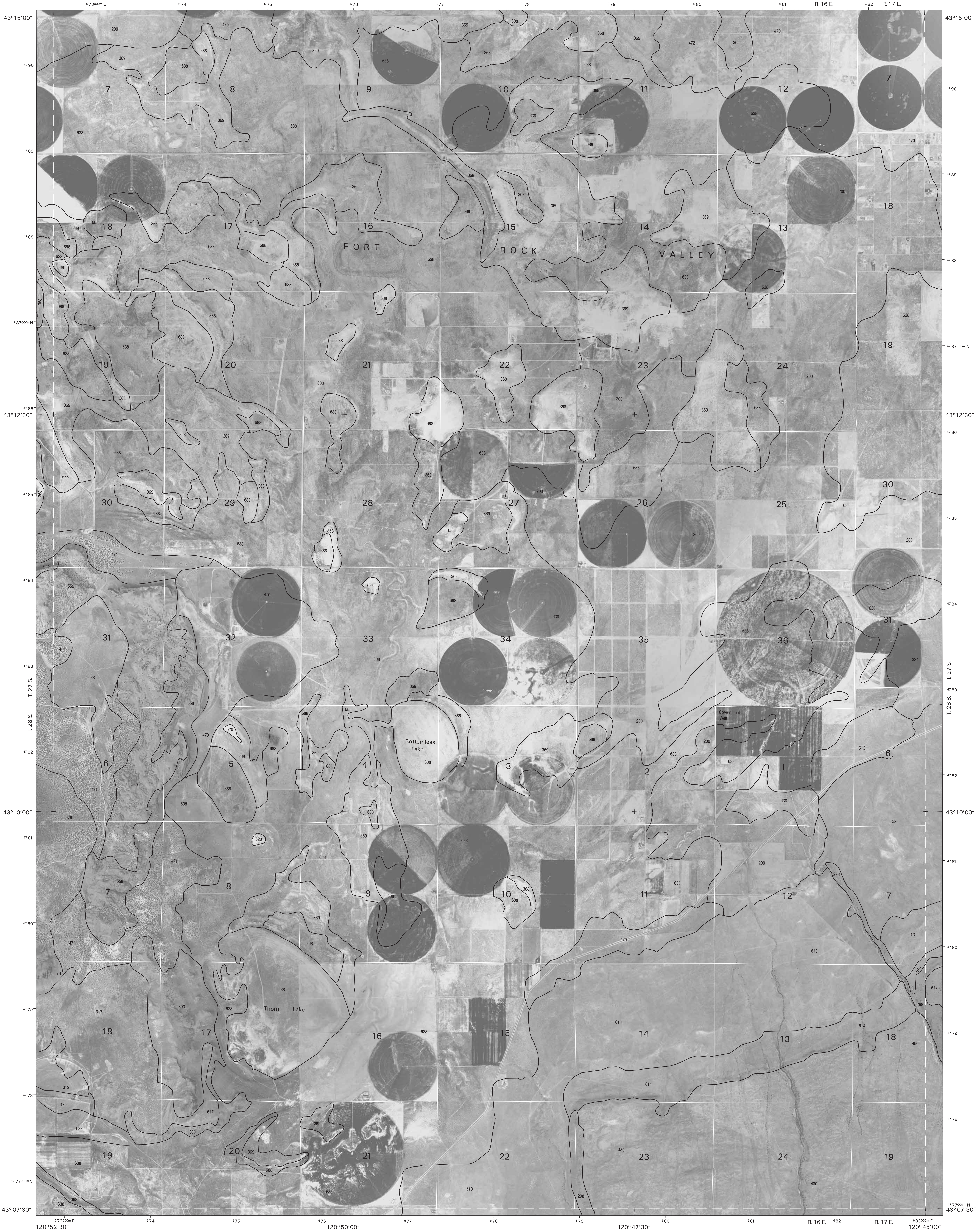
Joins sheet 29 Schaub Lake

Joins sheet 30 Lane Lake

Joins sheet 31 Crack In The Ground

Joins sheet 40 Tuff Butte

Joins sheet 42 Christmas Valley



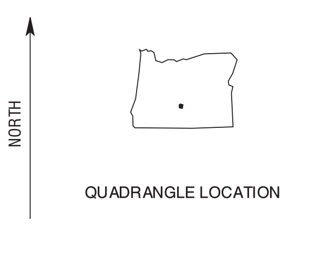
Joins sheet 51 Duncan Reservoir

Joins sheet 52 Egli Rim

Joins sheet 53 Sheeplick Draw

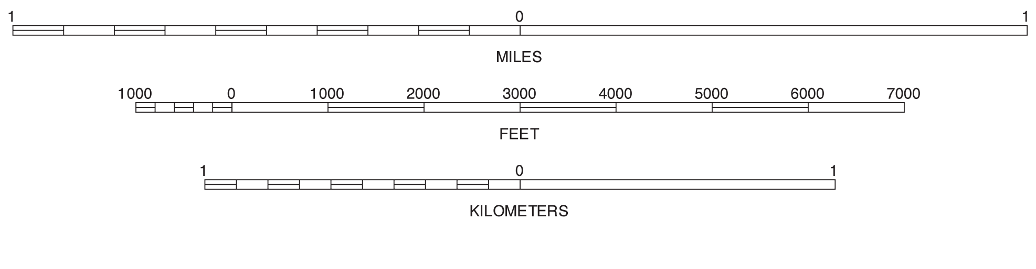
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



29	30	31
40		42
51	52	53

29 SCHAUB LAKE
30 LANE LAKE
31 CRACK IN THE GROUND
40 TUFF BUTTE
42 CHRISTMAS VALLEY
51 DUNCAN RESERVOIR
52 EGLI RIM
53 SHEEPLICK DRAW

INDEX TO ADJOINING 7.5 MAPS

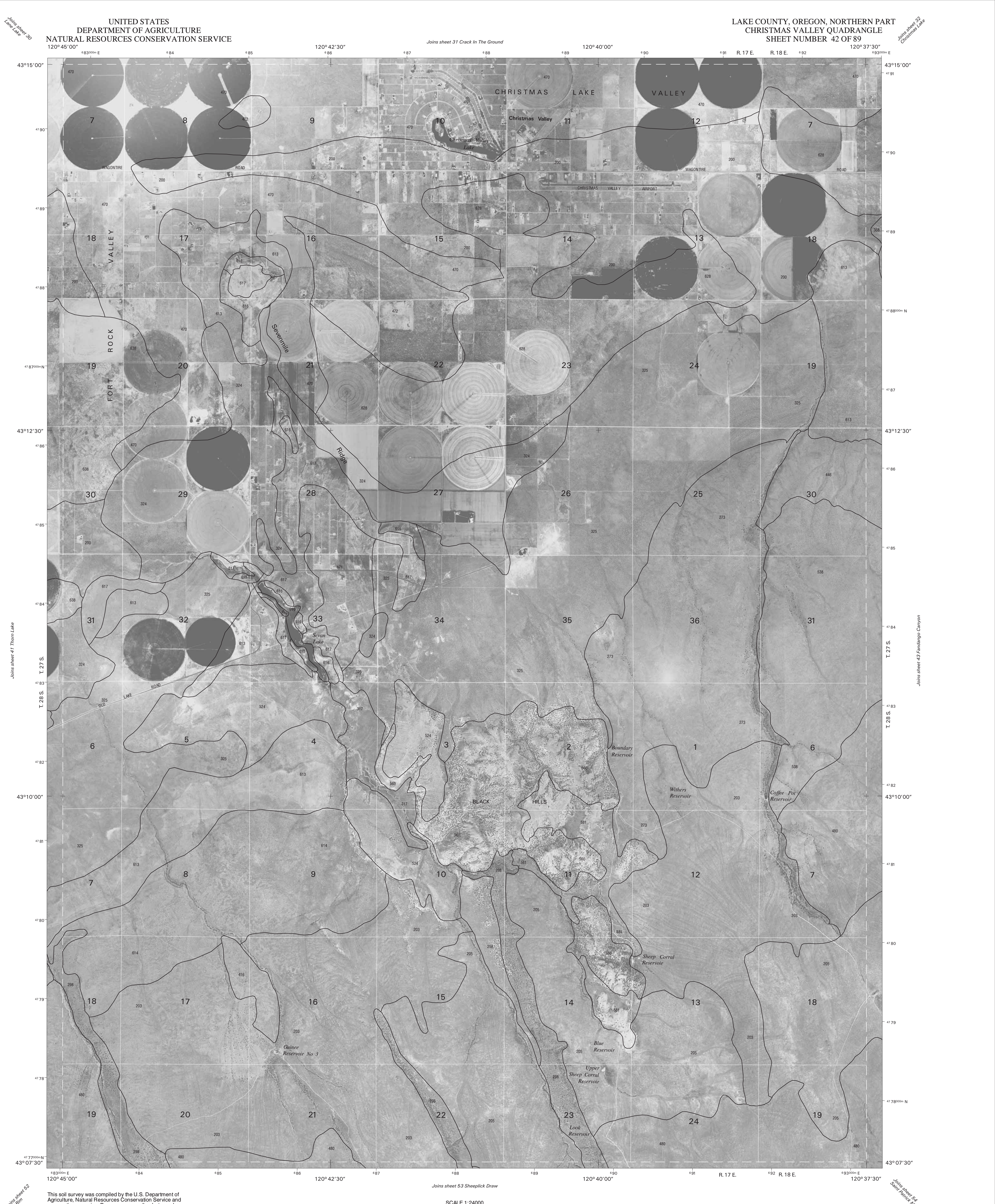
THORN LAKE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 41 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

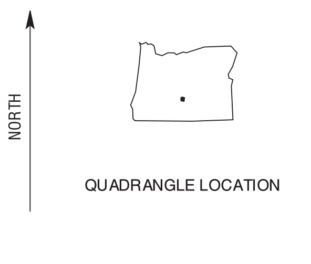
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
CHRISTMAS VALLEY QUADRANGLE
SHEET NUMBER 42 OF 89



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

30	31	32
41		43
52	53	54

30 LANE LAKE
31 CRACK IN THE GROUND
32 CHRISTMAS LAKE
41 THORN LAKE
43 FANDANGO CANYON
52 EGLI RIM
53 SHEEPLICK DRAW
54 SAINT PATRICK MOUNTAIN

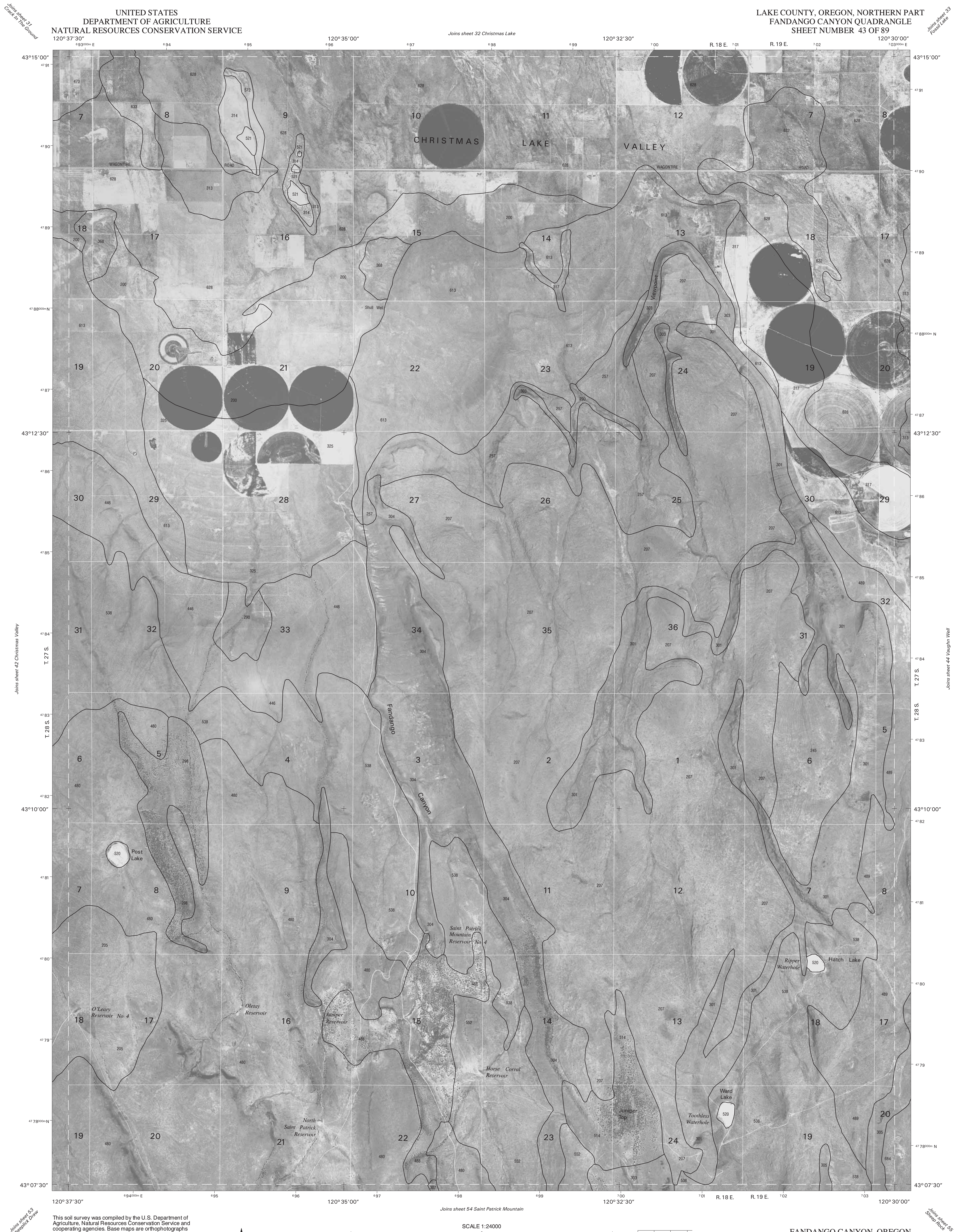
INDEX TO ADJOINING 7.5 MAPS

CHRISTMAS VALLEY, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 42 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

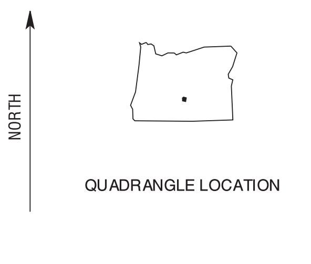
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
FANDANGO CANYON QUADRANGLE
SHEET NUMBER 43 OF 89



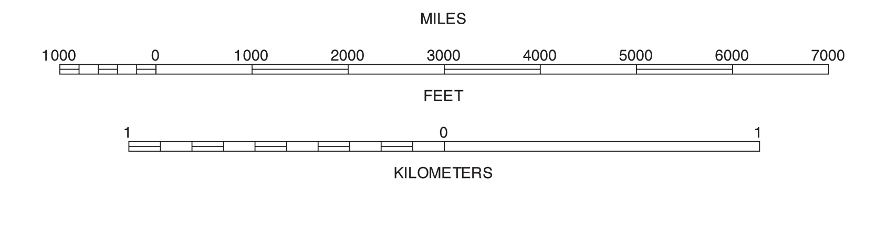
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

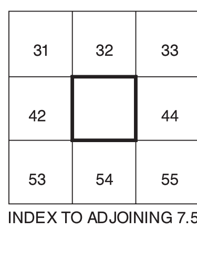
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





31 CRACK IN THE GROUND
32 CHRISTMAS LAKE
33 FOSSIL LAKE
42 CHRISTMAS VALLEY
44 VAUGHN WELL
53 SHEEPLICK DRAW
54 SAINT PATRICK MOUNTAIN
55 SHEEP ROCK

INDEX TO ADJOINING 7.5 MAPS

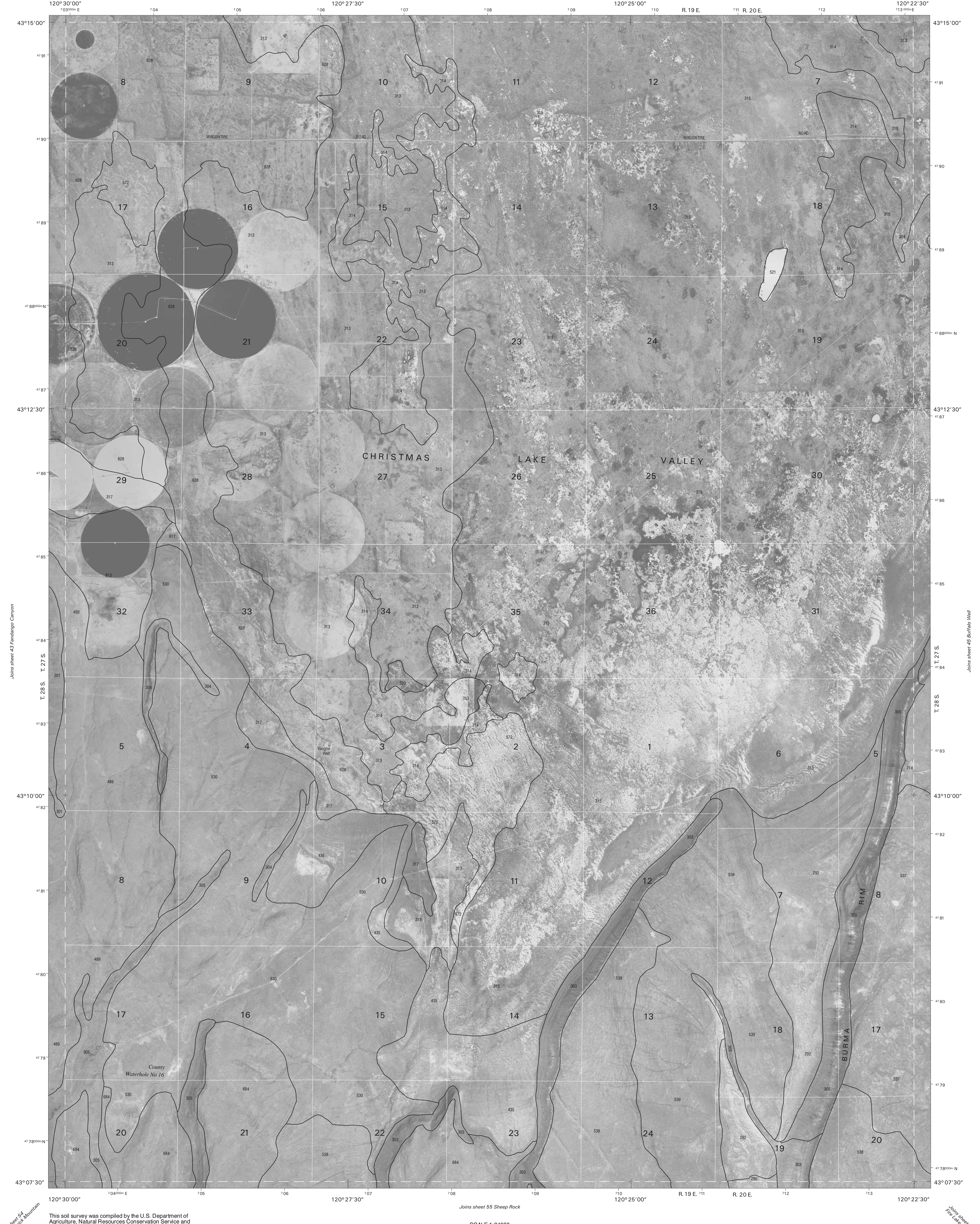
FANDANGO CANYON, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 43 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

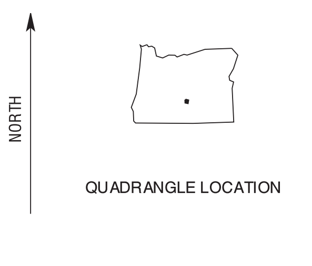
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
VAUGHN WELL QUADRANGLE
SHEET NUMBER 44 OF 89



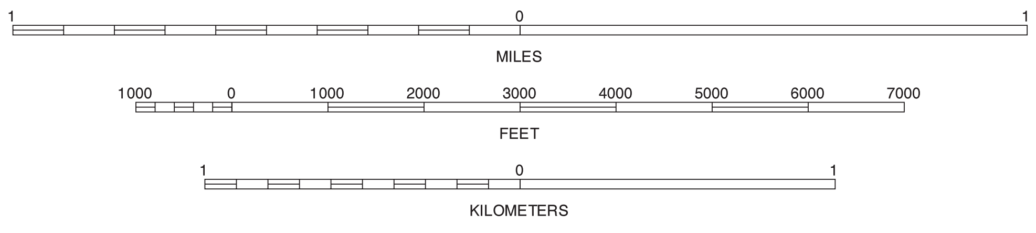
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



32	33	34
43		45
54	55	56

32 CHRISTMAS LAKE
33 FOSSIL LAKE
34 SAND ROCK
43 FANDANGO CANYON
45 BUFFALO WELL
54 SAINT PATRICK MOUNTAIN
55 SHEEP ROCK
56 FIRE LAKE

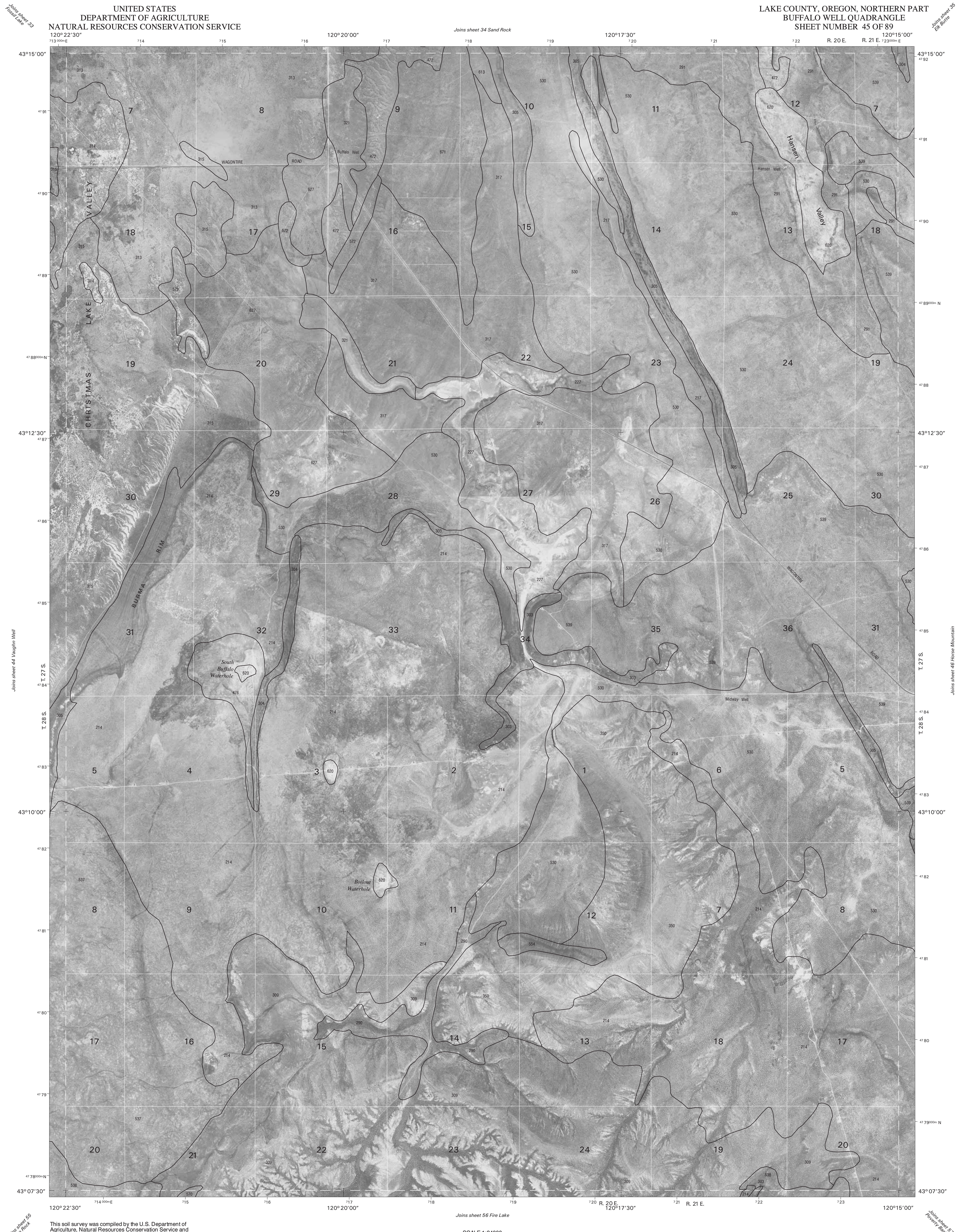
INDEX TO ADJOINING 7.5 MAPS

VAUGHN WELL, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 44 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

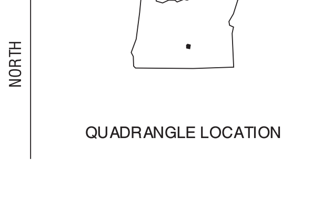
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
BUFFALO WELL QUADRANGLE
SHEET NUMBER 45 OF 89



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

33	34	35
44		46
55	56	57

33 FOSSIL LAKE
34 SAND ROCK
35 ELK BUTTE
44 VAUGHN WELL
46 HORSE MOUNTAIN
55 SHEEP ROCK
56 FIRE LAKE
57 POVERTY BASIN NORTH

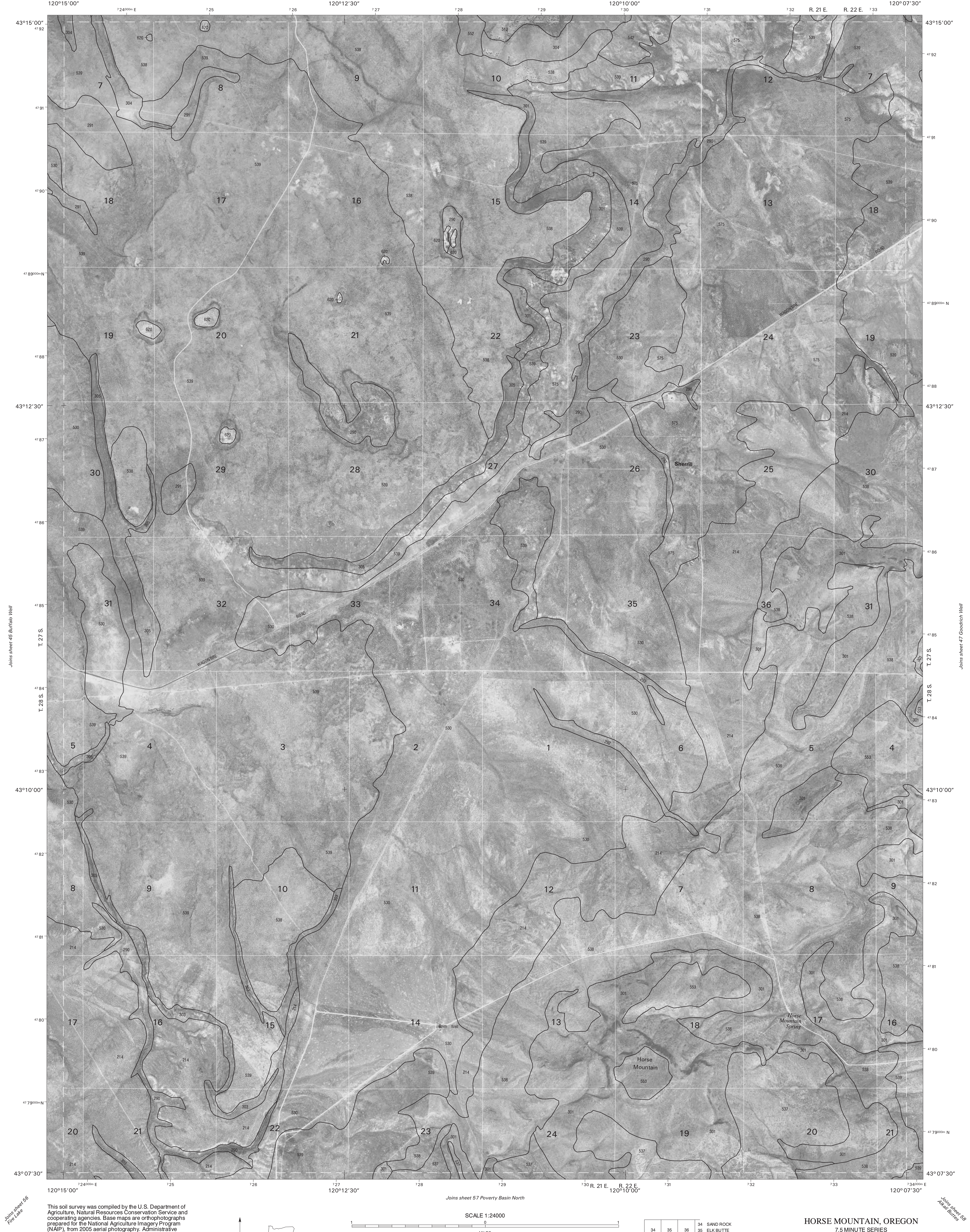
INDEX TO ADJOINING 7.5 MAPS

BUFFALO WELL, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 45 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

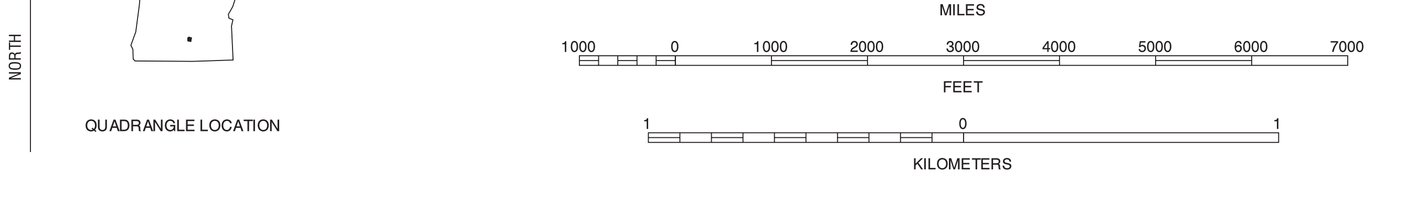
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
HORSE MOUNTAIN QUADRANGLE
SHEET NUMBER 46 OF 89



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



34	SAND ROCK
35	ELK BUTTE
36	RAMS BUTTE
45	BUFFALO WELL
47	GOODRICH WELL
56	FIRE LAKE
57	POVERTY BASIN NORTH
58	ALKALI BUTTES

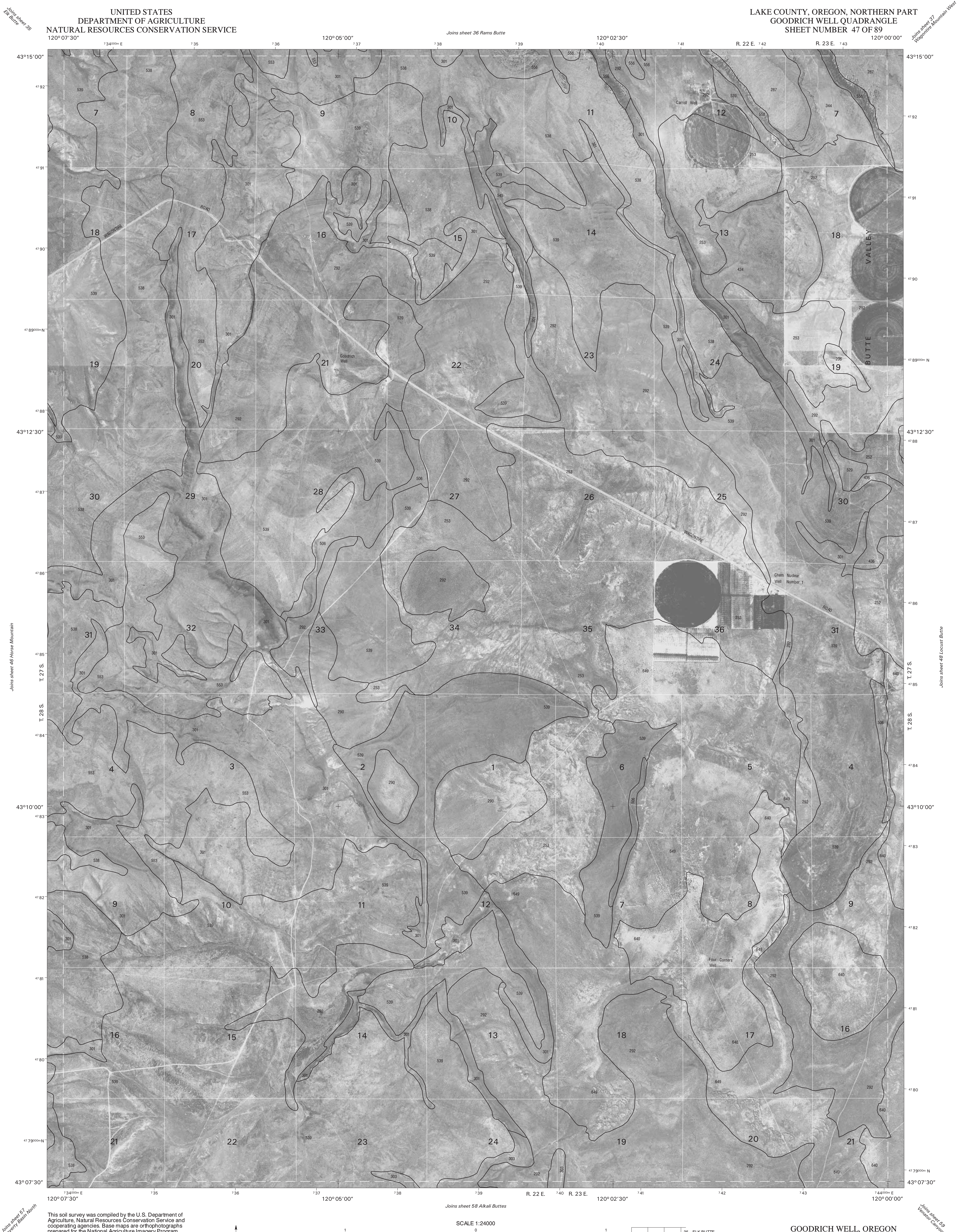
INDEX TO ADJOINING 7.5 MAPS

HORSE MOUNTAIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 46 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

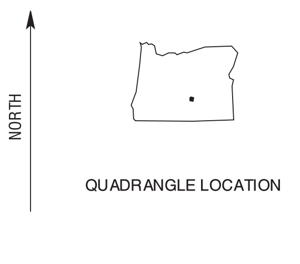
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
GOODRICH WELL QUADRANGLE
SHEET NUMBER 47 OF 89

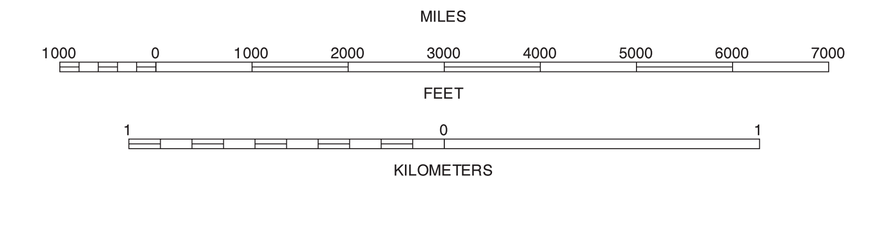

Joins sheet 35 Elk Butte
Joins sheet 36 Rams Butte
Joins sheet 37 Wagontire Mountain West
Joins sheet 46 Horse Mountain
Joins sheet 48 Locust Butte
Joins sheet 57 Poverty Basin North
Joins sheet 58 Alkali Buttes
Joins sheet 59 Venator Canyon
120° 07′30″
120° 05′00″
120° 02′30″
120° 00′00″
43° 15′00″
43° 12′30″
43° 10′00″
43° 07′30″
R. 22 E.
R. 23 E.
T. 27 S.
T. 28 S.
WAGONTIRE ROAD
VALLEY
BUTTE
Carroll Well
Goodrich Well
Chem Nuclear Well Number 1
Four Corners Well

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



35	36	37
46		48
57	58	59

35 ELK BUTTE
36 RAMS BUTTE
37 WAGONTIRE MOUNTAIN WEST
46 HORSE MOUNTAIN
48 LOCUST BUTTE
57 POVERTY BASIN NORTH
58 ALKALI BUTTES
59 VENATOR CANYON

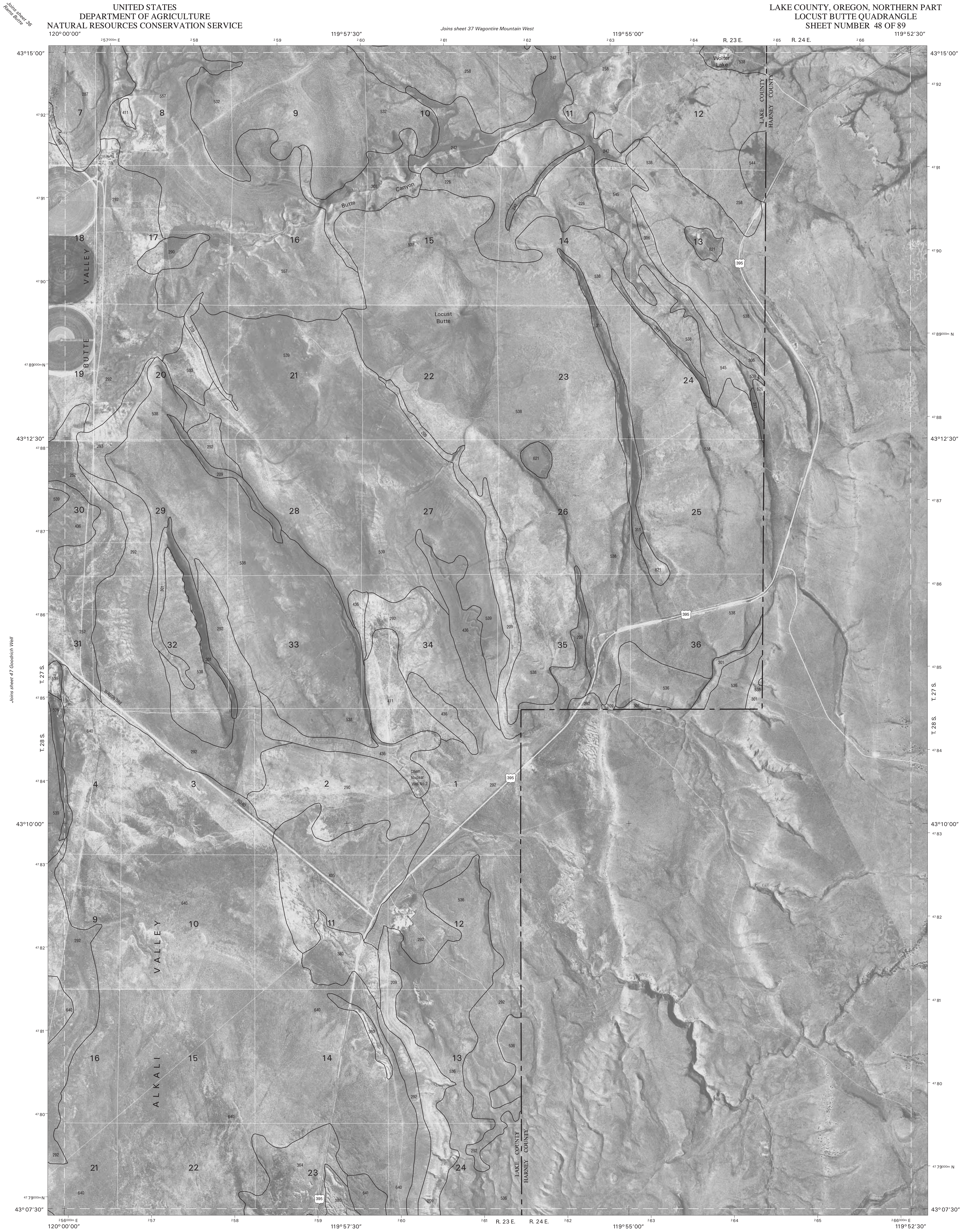
INDEX TO ADJOINING 7.5 MAPS

GOODRICH WELL, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 47 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

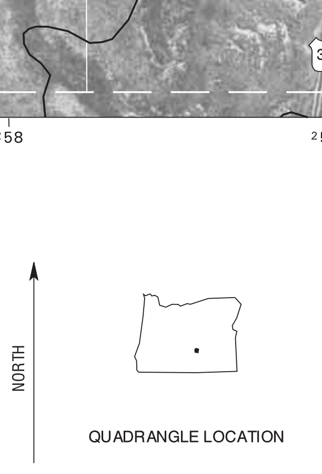
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
LOCUST BUTTE QUADRANGLE
SHEET NUMBER 48 OF 89



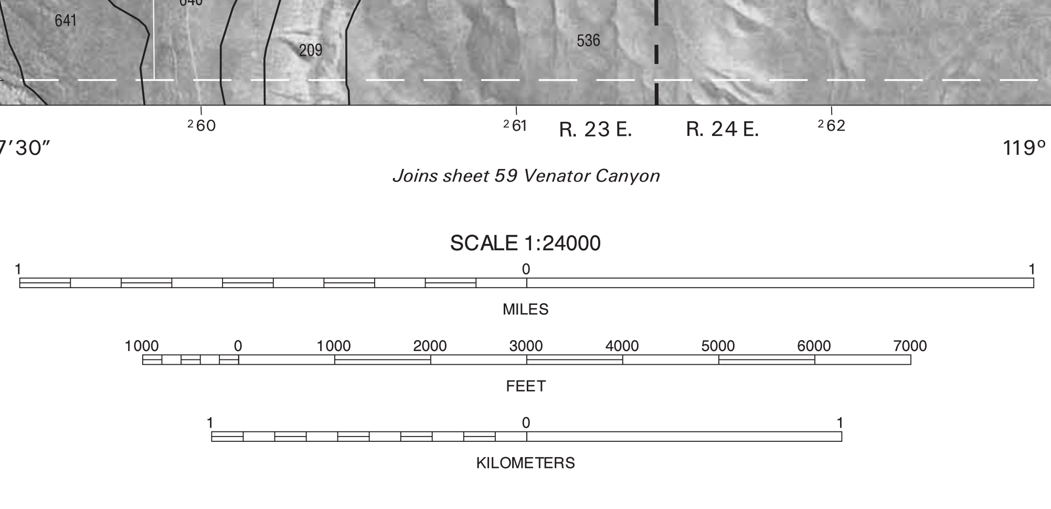
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



36	37	
47		
58	59	

36 RAMS BUTTE
37 WAGONTIRE MOUNTAIN WEST
47 GOODRICH WELL
58 ALKALI BUTTES
59 VENATOR CANYON

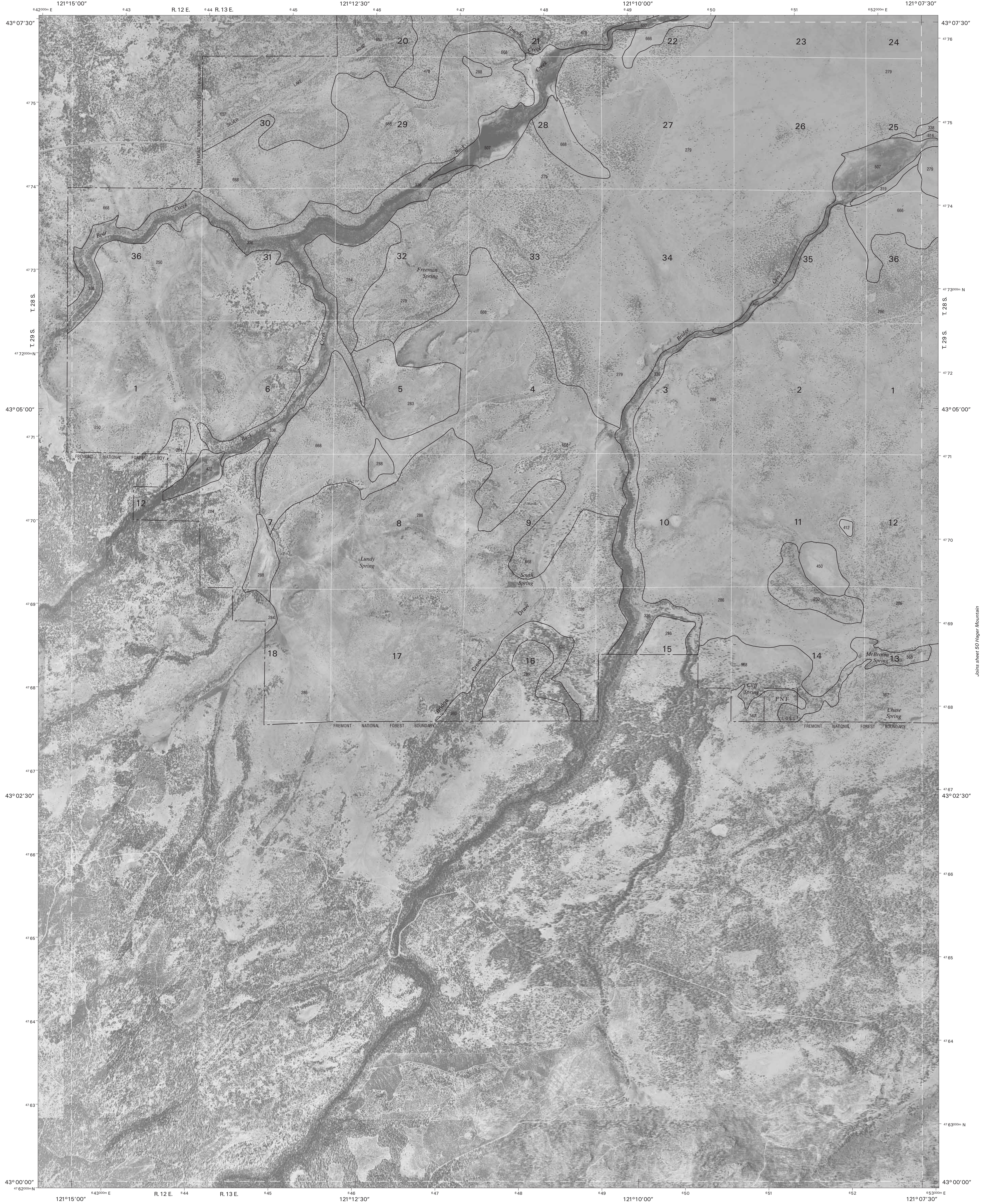
INDEX TO ADJOINING 7.5 MAPS

LOCUST BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 48 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

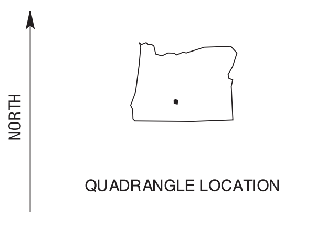
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
BRIDGE CREEK DRAW QUADRANGLE
SHEET NUMBER 49 OF 89

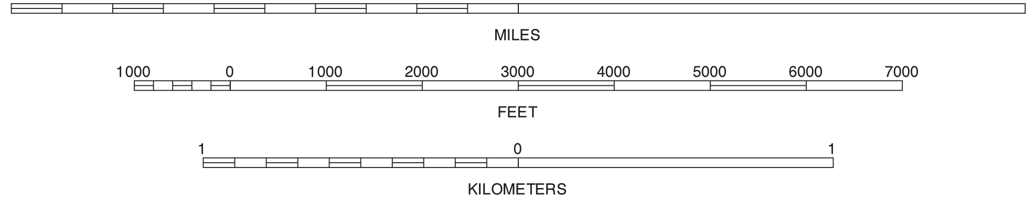


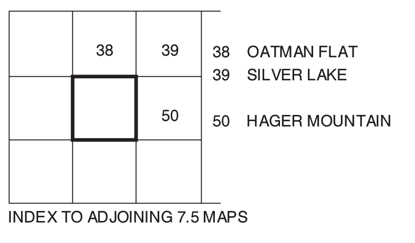
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



SCALE 1:24000



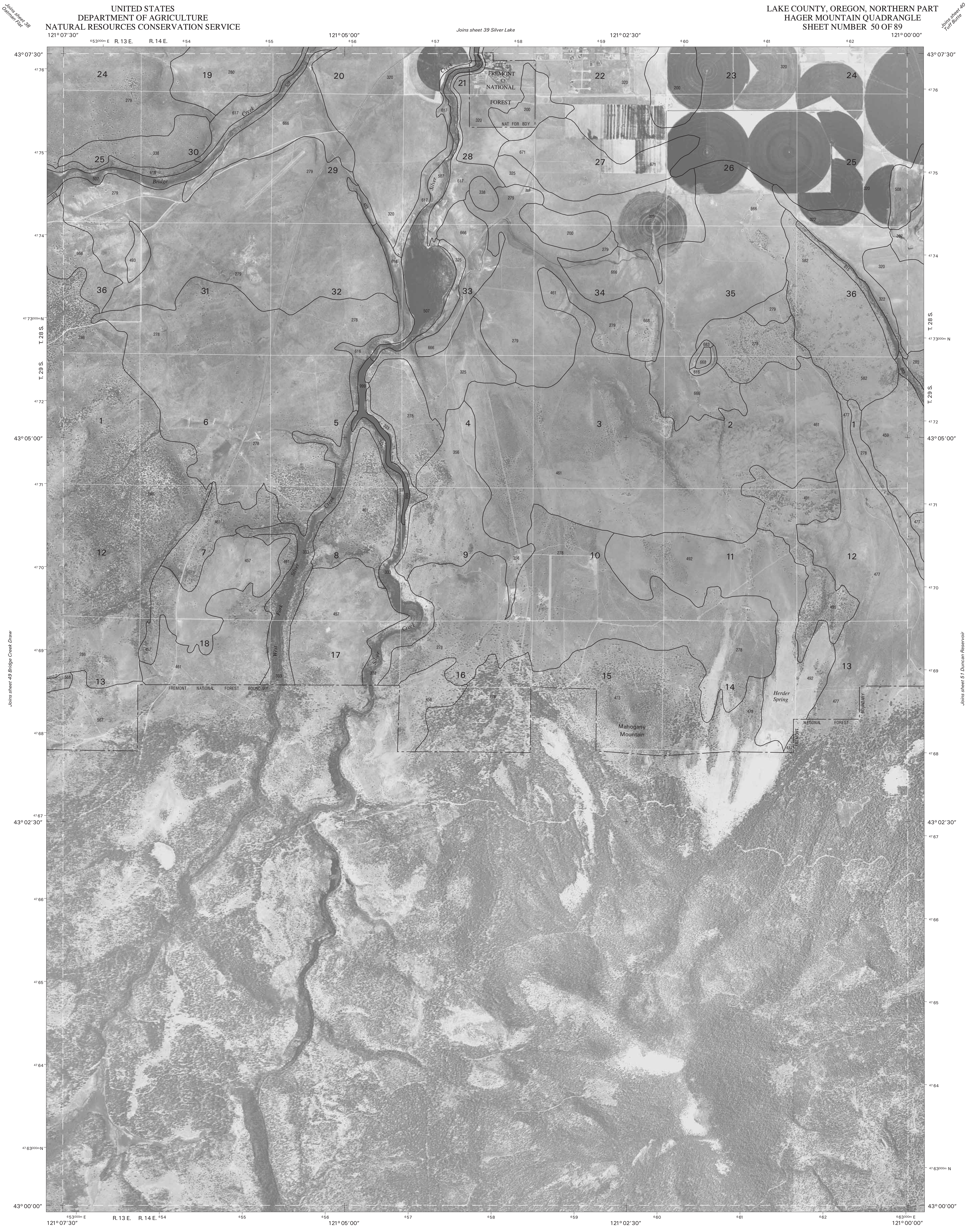


BRIDGE CREEK DRAW, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 49 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

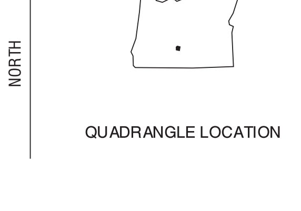
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
HAGER MOUNTAIN QUADRANGLE
SHEET NUMBER 50 OF 89



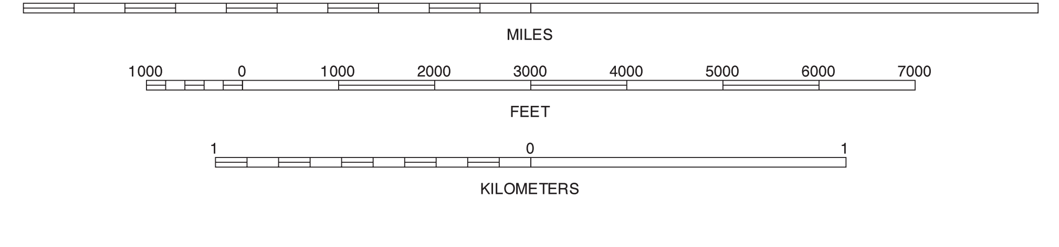
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

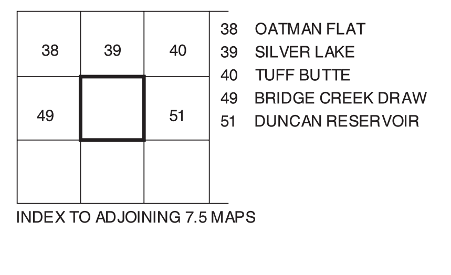
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





38 OATMAN FLAT
39 SILVER LAKE
40 TUFF BUTTE
49 BRIDGE CREEK DRAW
51 DUNCAN RESERVOIR

INDEX TO ADJOINING 7.5 MAPS

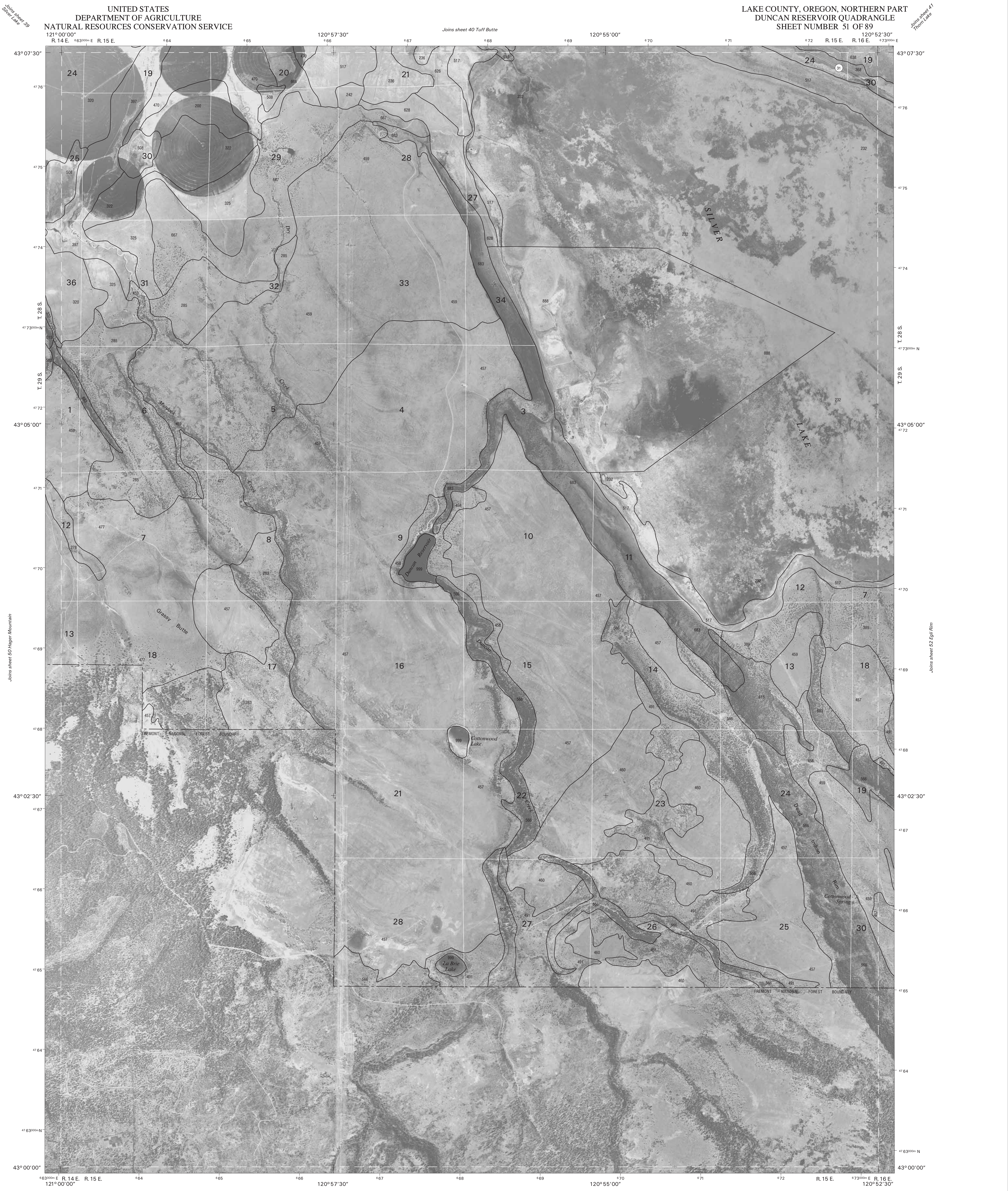
HAGER MOUNTAIN, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 50 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

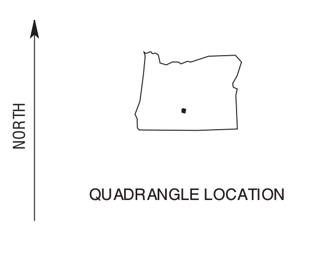
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
DUNCAN RESERVOIR QUADRANGLE
SHEET NUMBER 51 OF 89

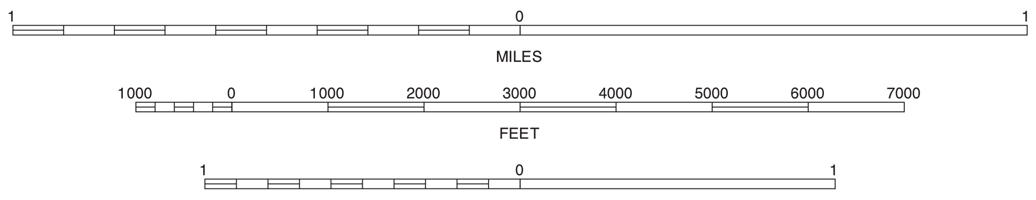


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

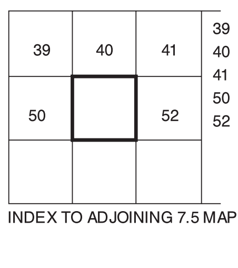
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



SCALE 1:24000



39 SILVER LAKE
40 TUFF BUTTE
41 THORN LAKE
50 HAGER MOUNTAIN
52 EGLI RIM

INDEX TO ADJOINING 7.5 MAPS

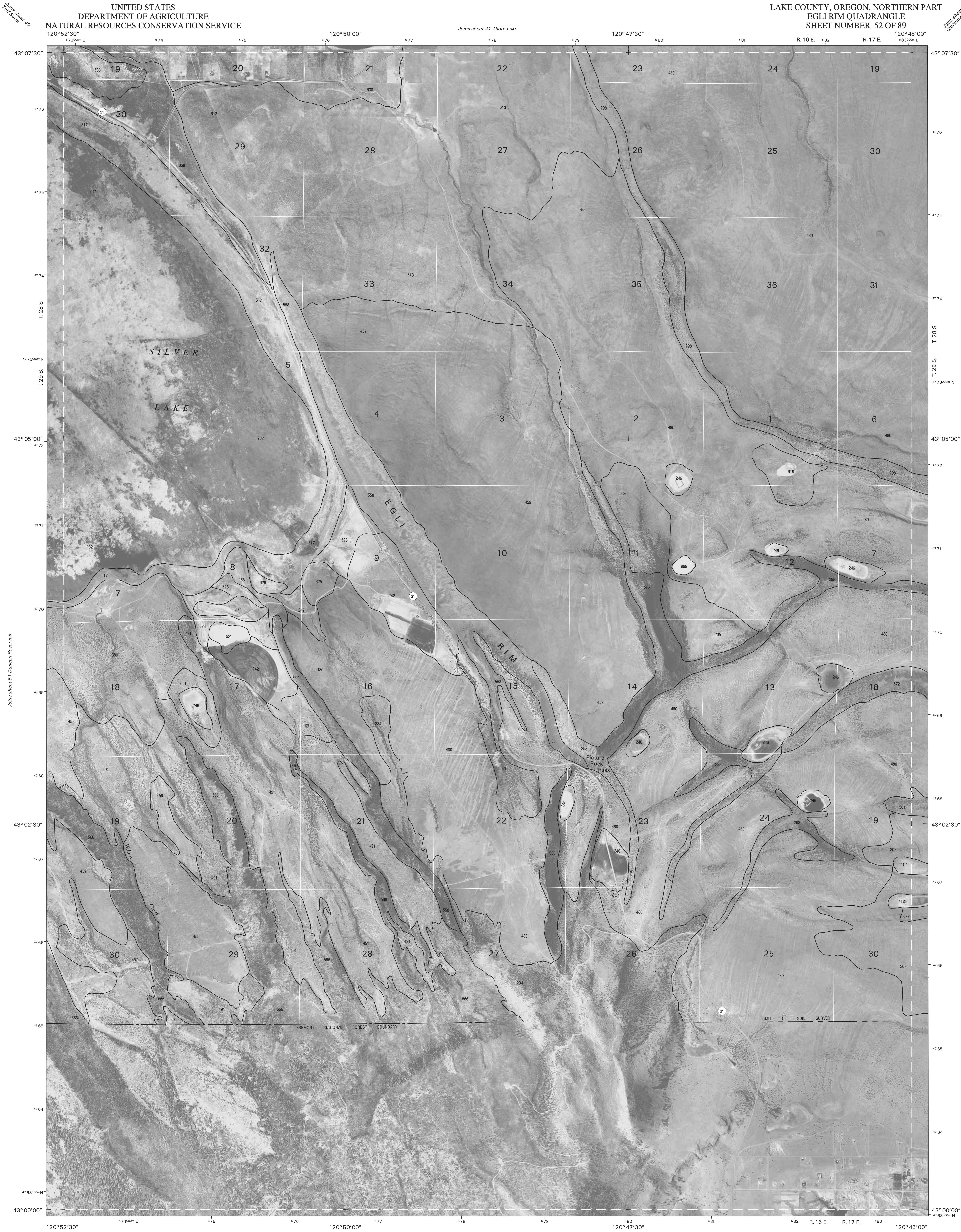
DUNCAN RESERVOIR, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 51 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
EGLI RIM QUADRANGLE
SHEET NUMBER 52 OF 89

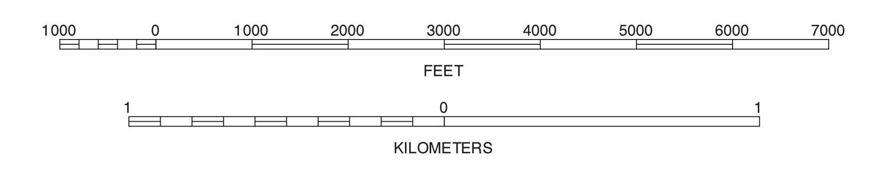


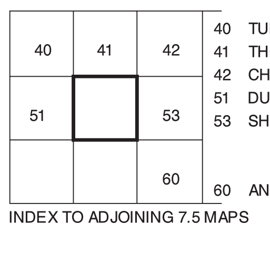
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION

SCALE 1:24000





40 TUFF BUTTE
41 THORN LAKE
42 CHRISTMAS VALLEY
51 DUNCAN RESERVOIR
53 SHEEPLICK DRAW
60 ANA RIVER

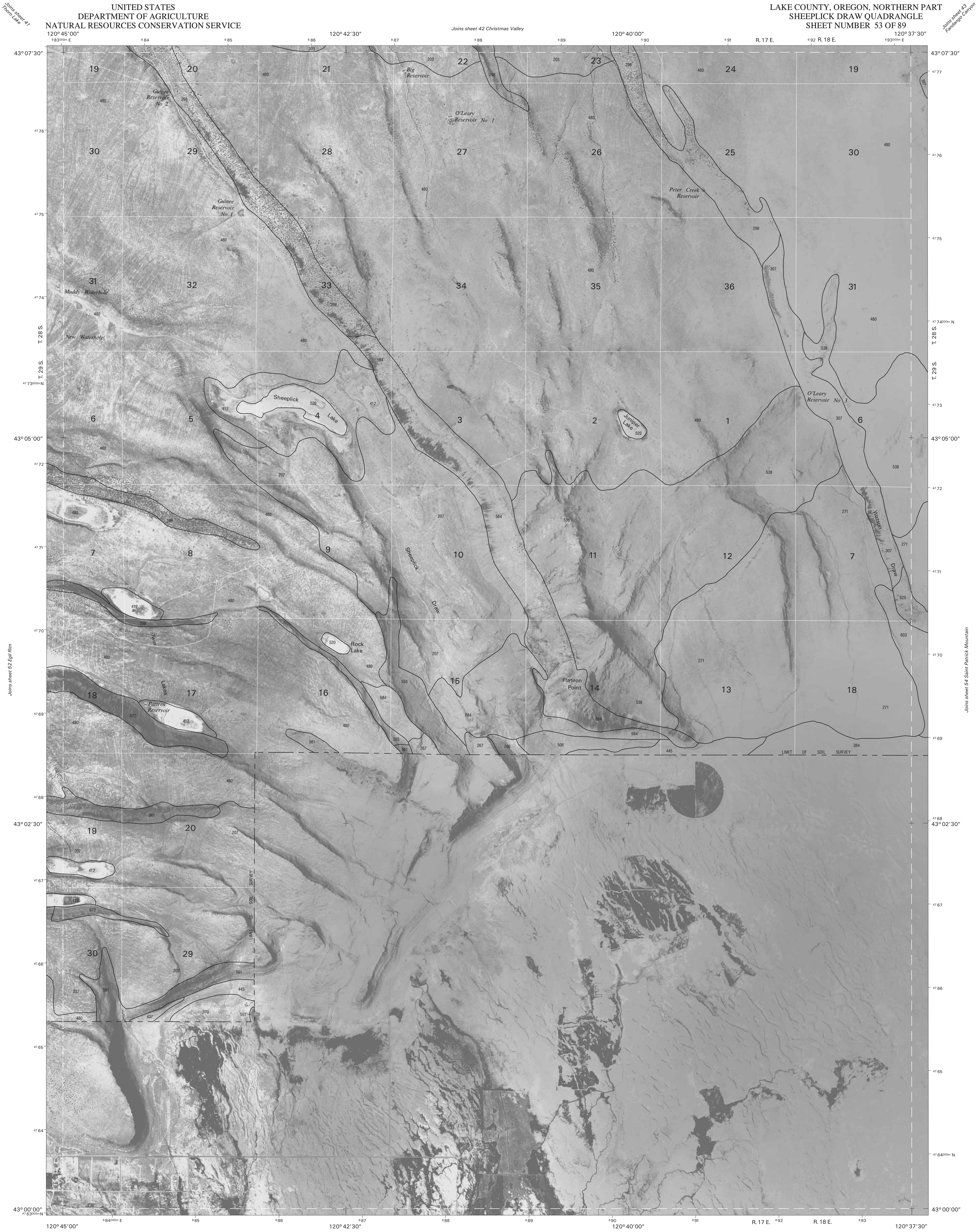
INDEX TO ADJOINING 7.5 MAPS

EGLI RIM, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 52 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SHEEPLICK DRAW QUADRANGLE
SHEET NUMBER 53 OF 89



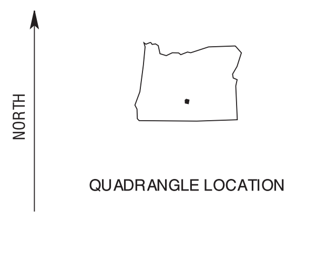
120° 45′00″ ... 120° 42′30″ ... 120° 40′00″ ... R. 17 E. R. 18 E. 120° 37′30″

Joins sheet 60 Ana River

Joins sheet 61 Diablo Peak

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

41	42	43
52		54
	60	61

41 THORN LAKE
42 CHRISTMAS VALLEY
43 FANDANGO CANYON
52 EGLI RIM
54 SAINT PATRICK MOUNTAIN

60 ANA RIVER
61 DIABLO PEAK

INDEX TO ADJOINING 7.5 MAPS

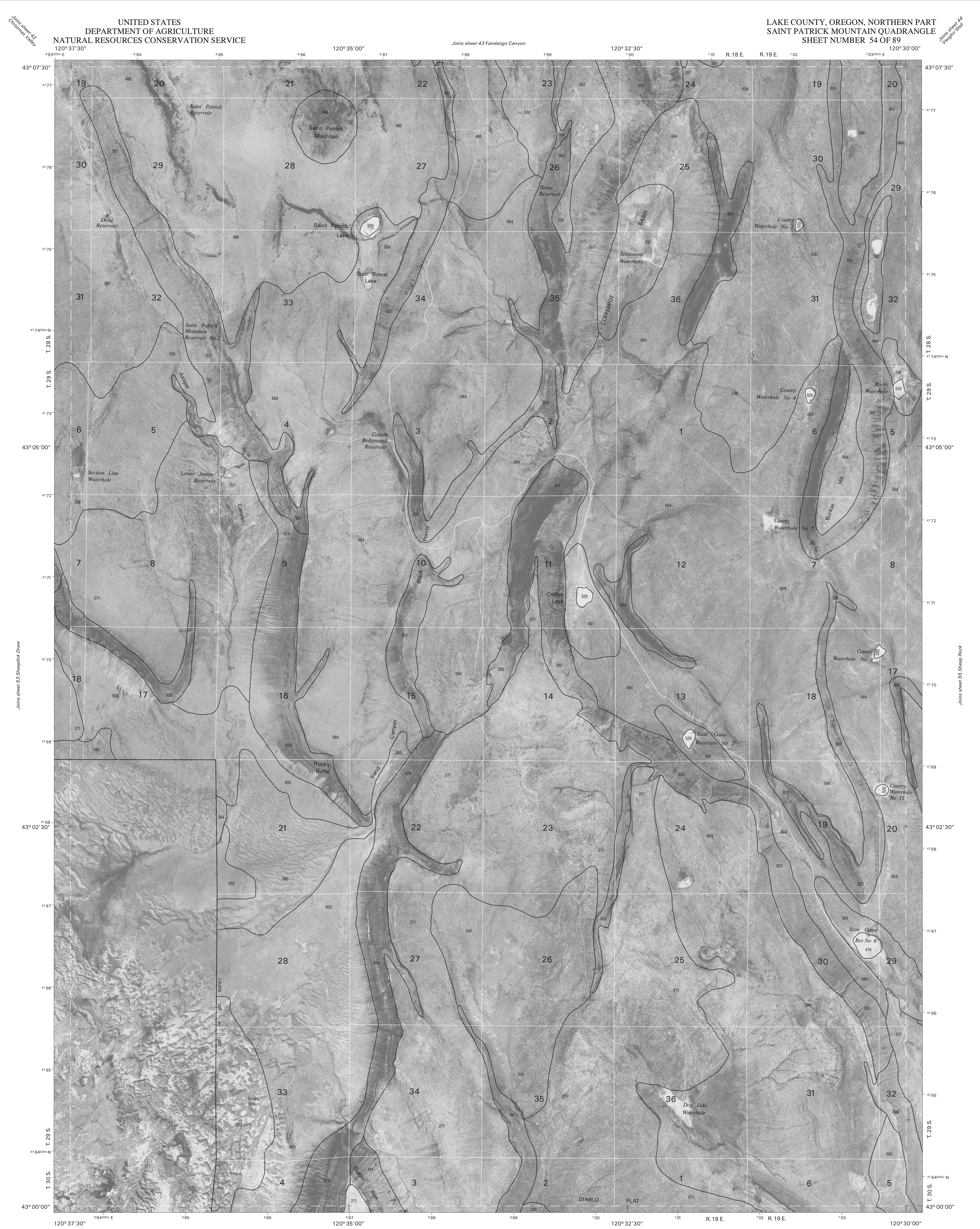
SHEEPLICK DRAW, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 53 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

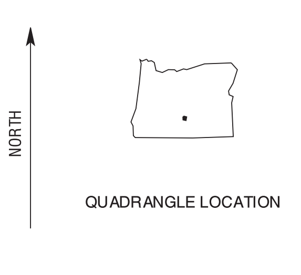
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

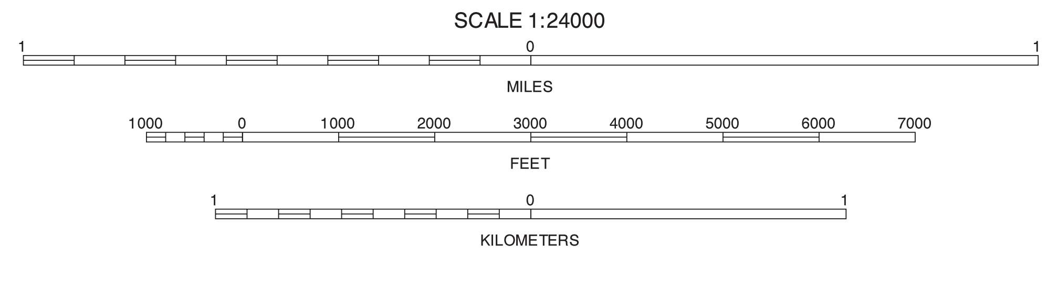
LAKE COUNTY, OREGON, NORTHERN PART
SAINT PATRICK MOUNTAIN QUADRANGLE
SHEET NUMBER 54 OF 89

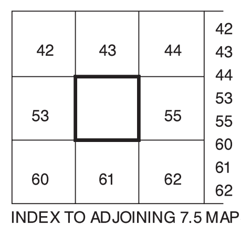


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.







42 CHRISTMAS VALLEY
43 FANDANGO CANYON
44 VAUGHN WELL
53 SHEEPLICK DRAW
55 SHEEP ROCK
60 ANA RIVER
61 DIABLO PEAK
62 BULL LAKE

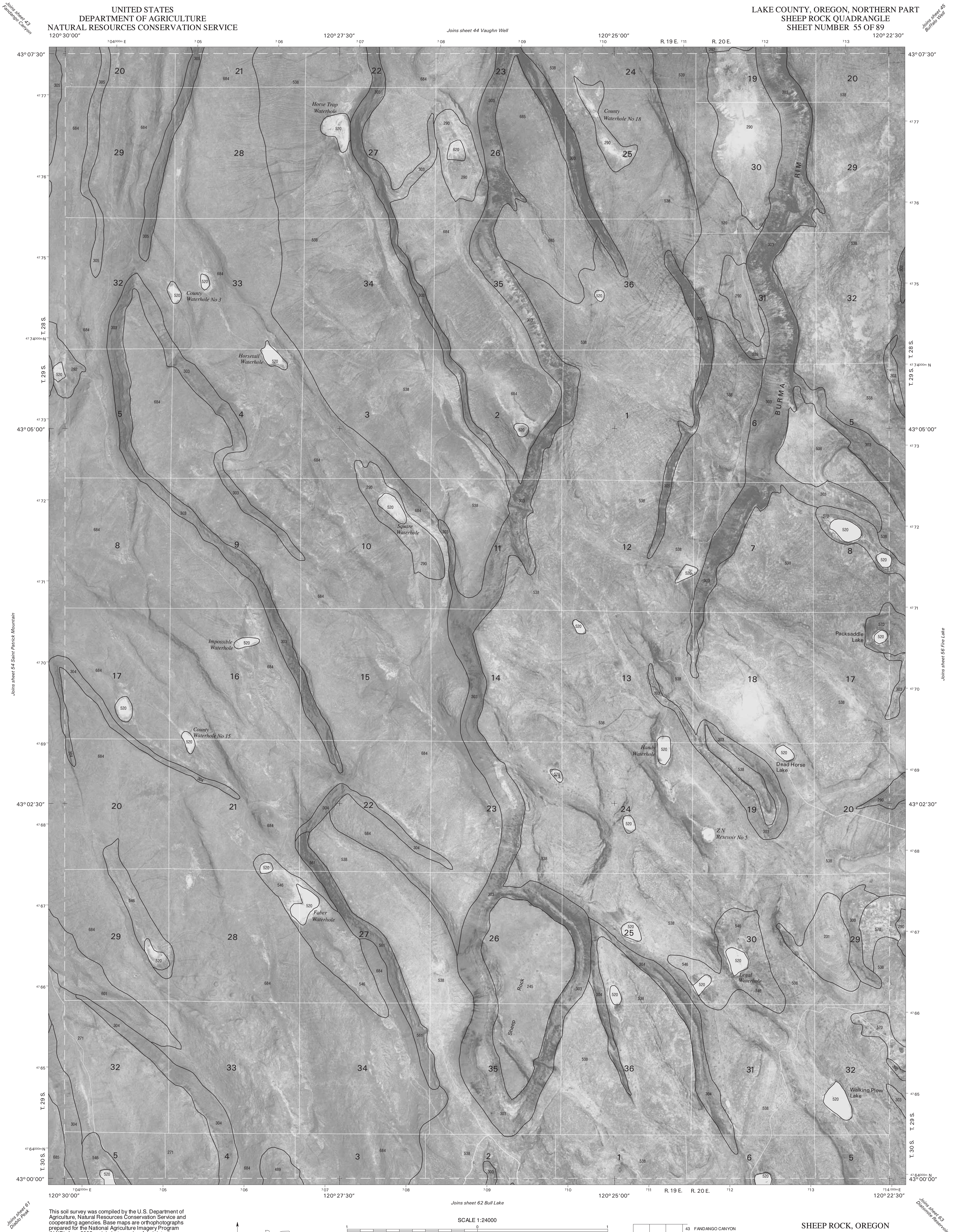
INDEX TO ADJOINING 7.5 MAPS

SAINT PATRICK MOUNTAIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 54 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

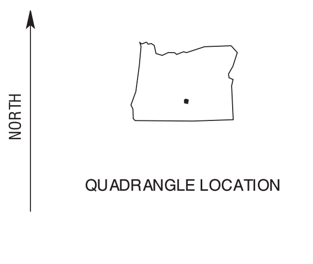
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SHEEP ROCK QUADRANGLE
SHEET NUMBER 55 OF 89



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

43	44	45
54		56
61	62	63

43 FANDANGO CANYON
44 VAUGHN WELL
45 BUFFALO WELL
54 SAINT PATRICK MOUNTAIN
56 FIRE LAKE
61 DIABLO PEAK
62 BULL LAKE
63 DIATOMITE RESERVOIR

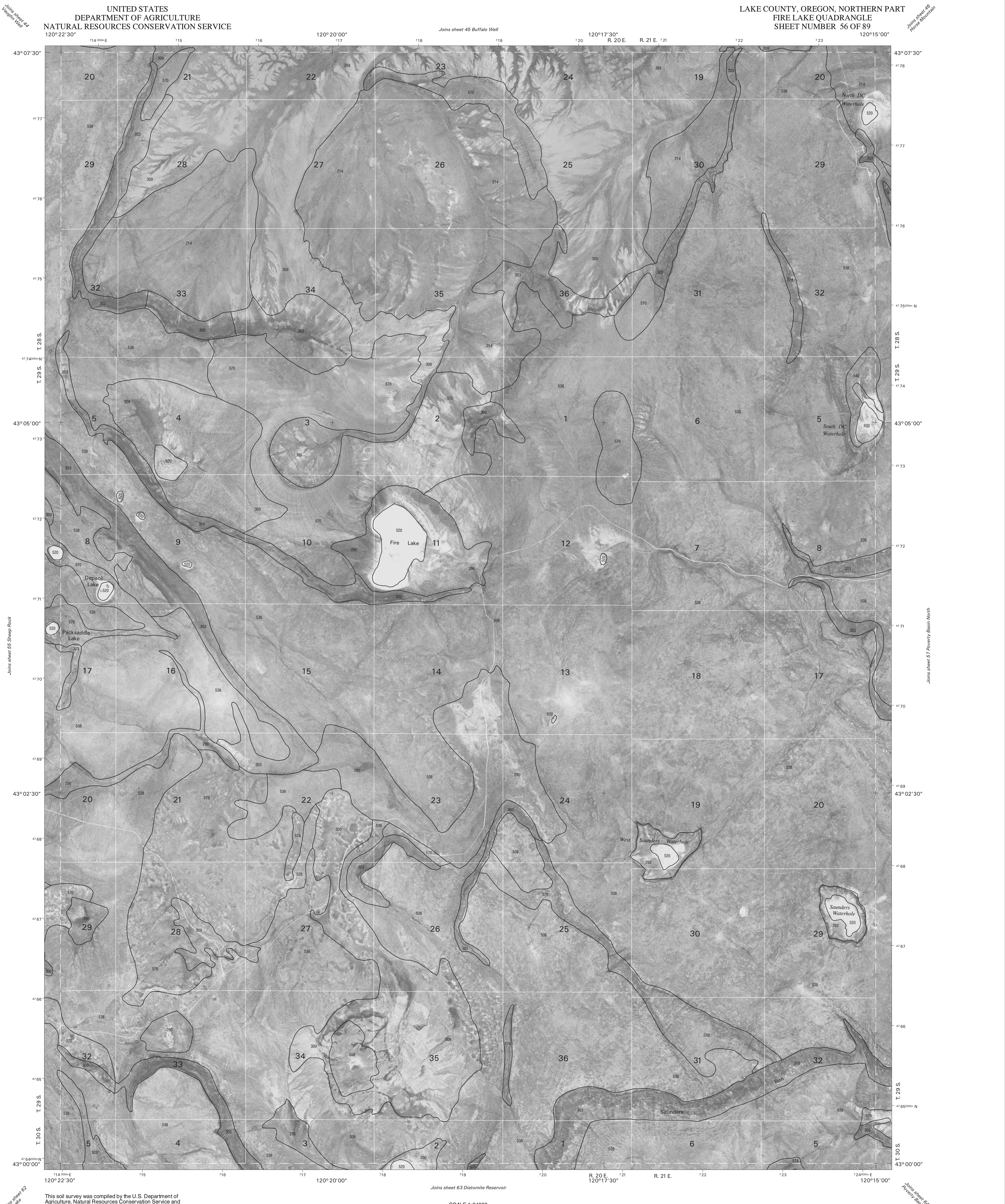
INDEX TO ADJOINING 7.5 MAPS

SHEEP ROCK, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 55 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

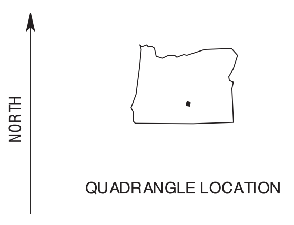
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
FIRE LAKE QUADRANGLE
SHEET NUMBER 56 OF 89

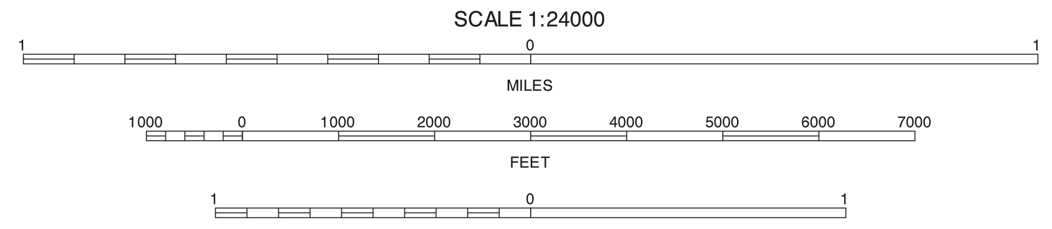


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



44	45	46
55		57
62	63	64

44 VAUGHN WELL
45 BUFFALO WELL
46 HORSE MOUNTAIN
55 SHEEP ROCK
57 POVERTY BASIN NORTH
62 BULL LAKE
63 DIATOMITE RESERVOIR
64 POVERTY BASIN SOUTH

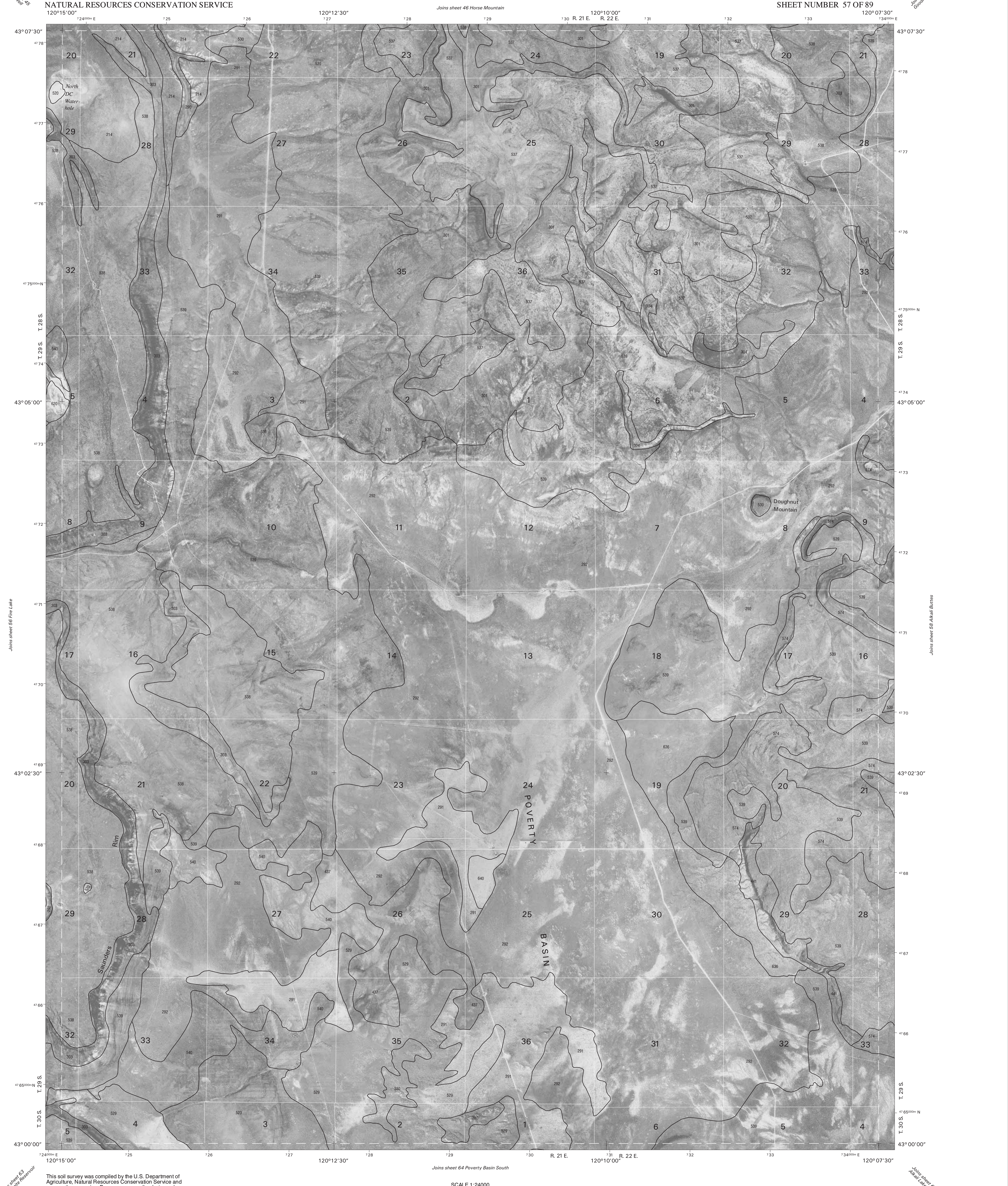
INDEX TO ADJOINING 7.5 MAPS

FIRE LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 56 OF 89

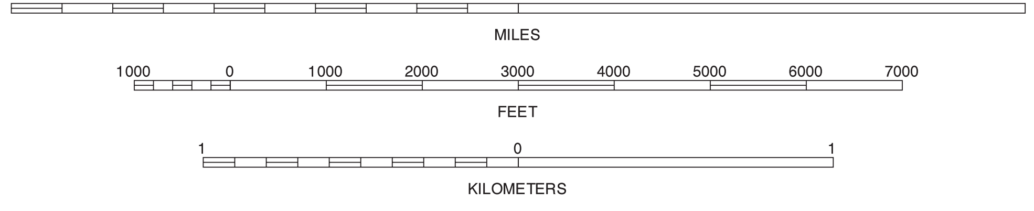
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
POVERTY BASIN NORTH QUADRANGLE
SHEET NUMBER 57 OF 89



QUADRANGLE LOCATION



SCALE 1:24000

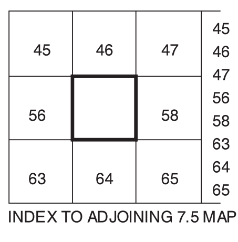
MILES

FEET

KILOMETERS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



45	BUFFALO WELL
46	HORSE MOUNTAIN
47	GOODRICH WELL
56	FIRE LAKE
58	ALKALI BUTTES
63	DIATOMITE RESERVOIR
64	POVERTY BASIN SOUTH
65	ALKALI LAKE

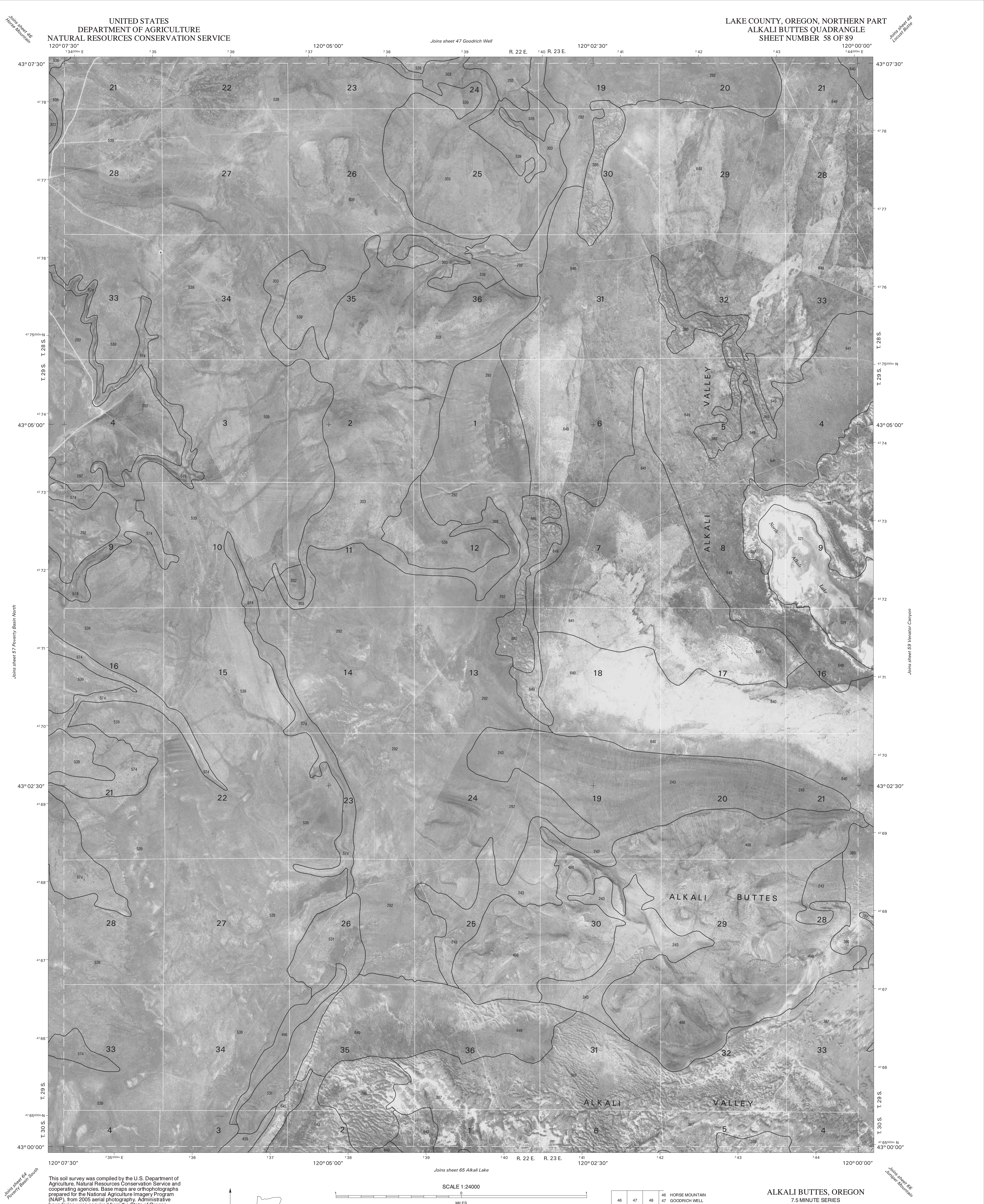
INDEX TO ADJOINING 7.5 MAPS

POVERTY BASIN NORTH, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 57 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
ALKALI BUTTES QUADRANGLE
SHEET NUMBER 58 OF 89

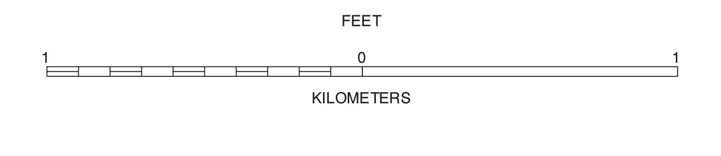


Joins sheet 46 Horse Mountain
Joins sheet 47 Goodrich Well
Joins sheet 48 Locust Butte
Joins sheet 57 Poverty Basin North
Joins sheet 59 Venator Canyon
Joins sheet 64 Poverty Basin South
Joins sheet 65 Alkali Lake
Joins sheet 66 Juniper Mountain
120° 07′30″
120° 05′00″
120° 02′30″
120° 00′00″
43° 07′30″
43° 05′00″
43° 02′30″
43° 00′00″
R. 22 E.
R. 23 E.
T. 28 S.
T. 29 S.
T. 30 S.
VALLEY
ALKALI
North Alkali Lake
ALKALI BUTTES
ALKALI VALLEY

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION



46	47	48
57		59
64	65	66

46 HORSE MOUNTAIN
47 GOODRICH WELL
48 LOCUST BUTTE
57 POVERTY BASIN NORTH
59 VENATOR CANYON
64 POVERTY BASIN SOUTH
65 ALKALI LAKE
66 JUNIPER MOUNTAIN

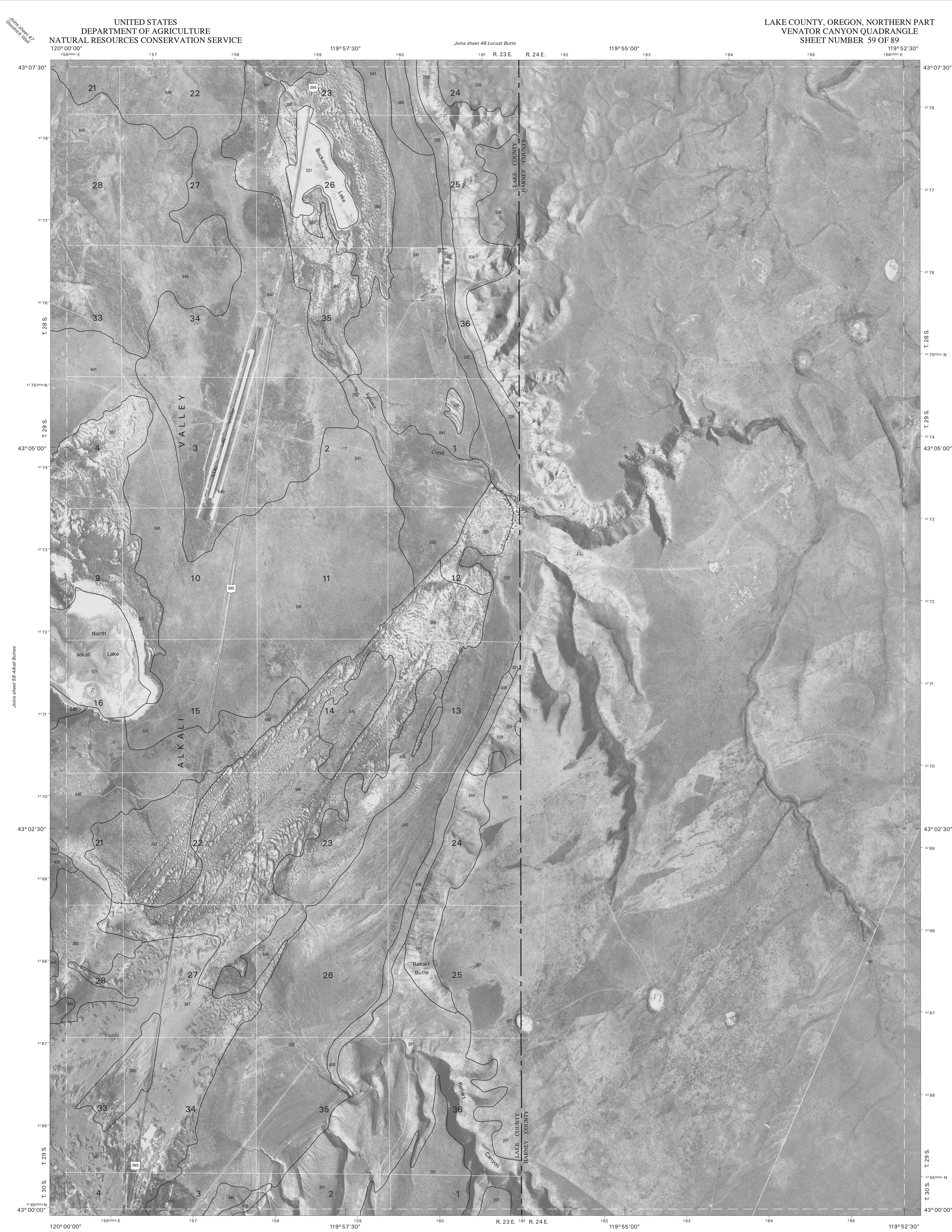
INDEX TO ADJOINING 7.5 MAPS

ALKALI BUTTES, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 58 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

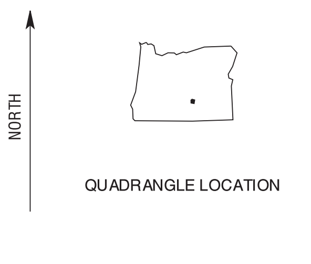
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
VENATOR CANYON QUADRANGLE
SHEET NUMBER 59 OF 89



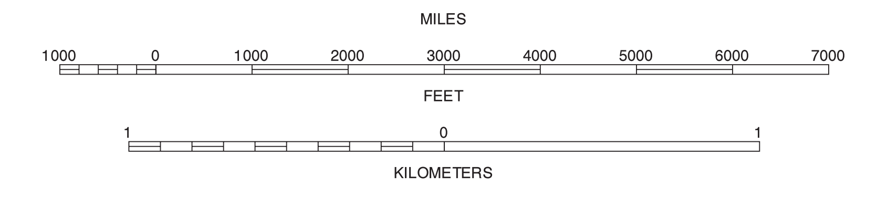
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

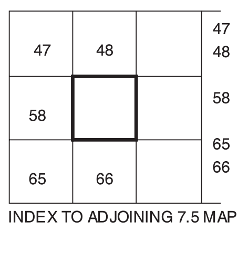
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





47 GOODRICH WELL
48 LOCUST BUTTE
58 ALKALI BUTTES
65 ALKALI LAKE
66 JUNIPER MOUNTAIN

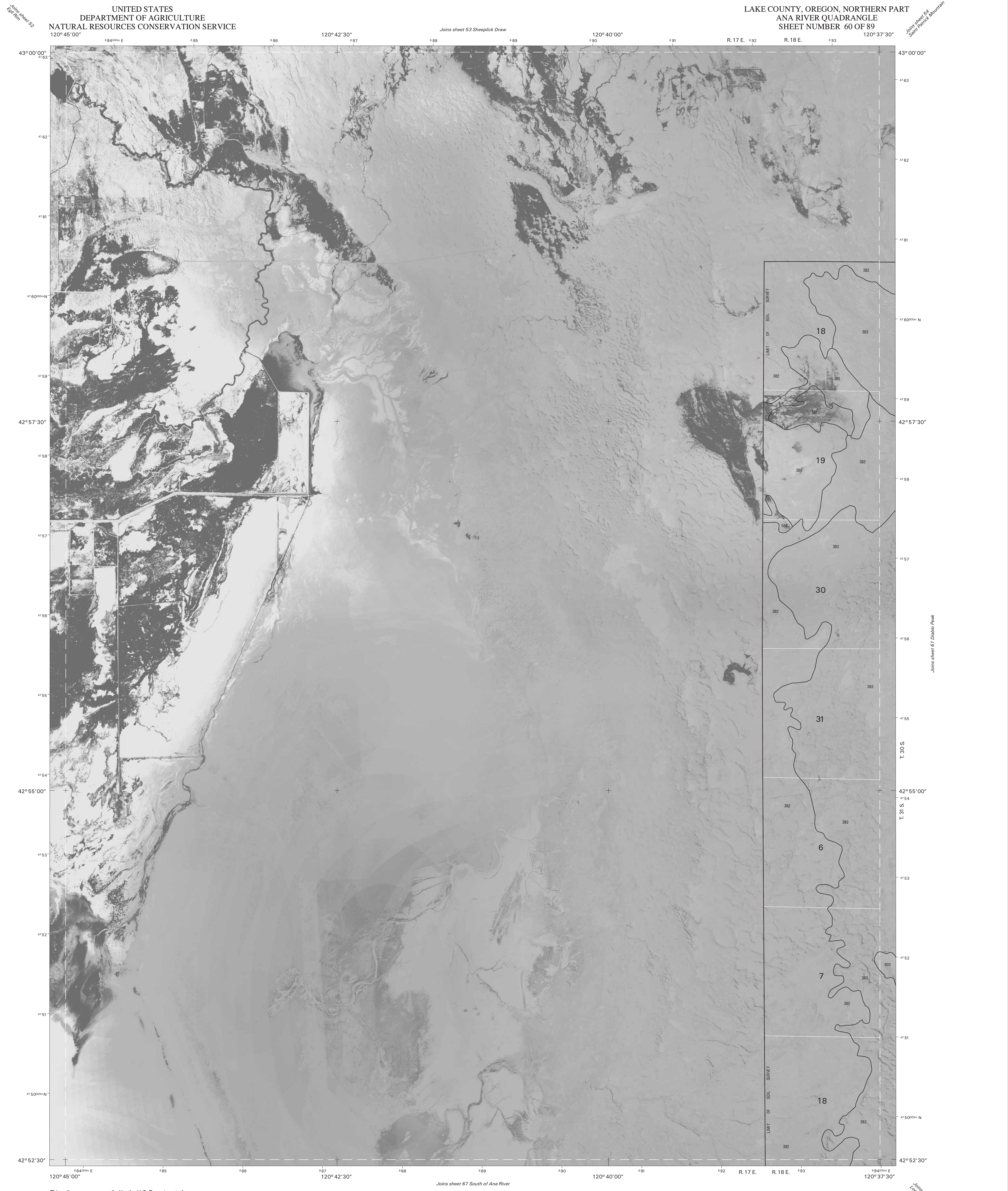
INDEX TO ADJOINING 7.5 MAPS

VENATOR CANYON, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 59 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
ANA RIVER QUADRANGLE
SHEET NUMBER 60 OF 89



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

52	53	54
		61
	67	68

52 EGLI RIM
53 SHEEPLICK DRAW
54 SAINT PATRICK MOUNTAIN
61 DIABLO PEAK
67 SOUTH OF ANA RIVER
68 LOCO LAKE

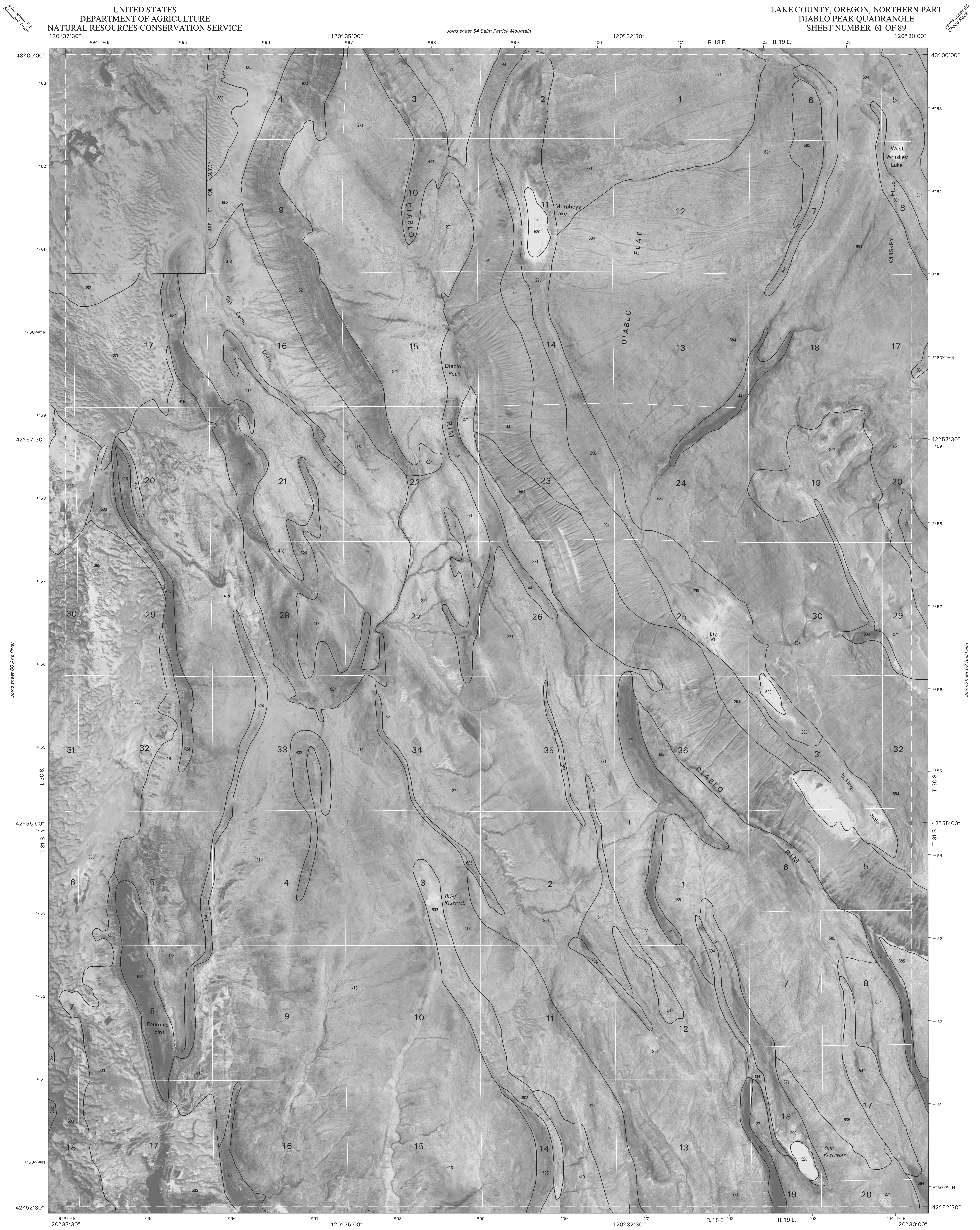
INDEX TO ADJOINING 7.5 MAPS

ANA RIVER, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 60 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

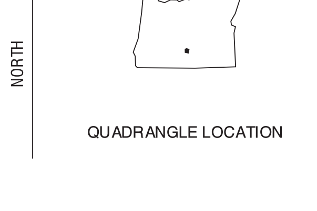
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
DIABLO PEAK QUADRANGLE
SHEET NUMBER 61 OF 89



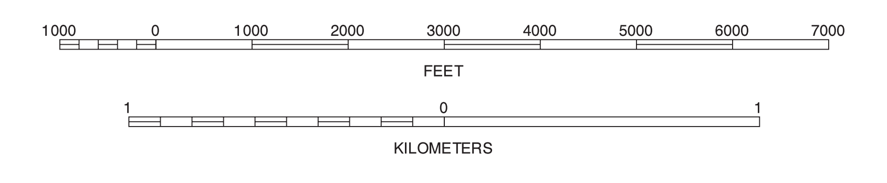
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



53	54	55
60		62
67	68	69

53 SHEEPLICK DRAW
54 SAINT PATRICK MOUNTAIN
55 SHEEP ROCK
60 ANA RIVER
62 BULL LAKE
67 SOUTH OF ANA RIVER
68 LOCO LAKE
69 SHARP TOP

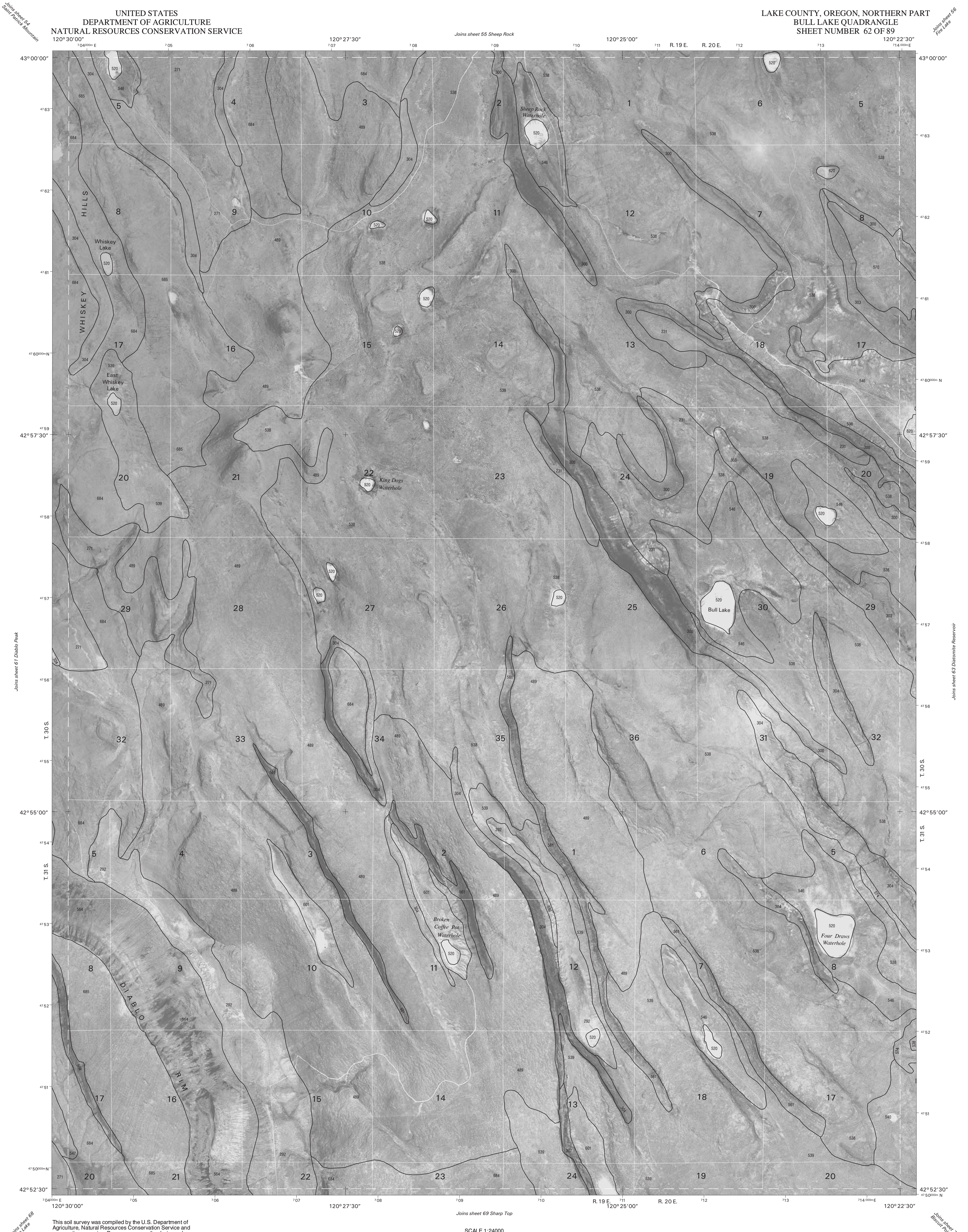
INDEX TO ADJOINING 7.5 MAPS

DIABLO PEAK, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 61 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

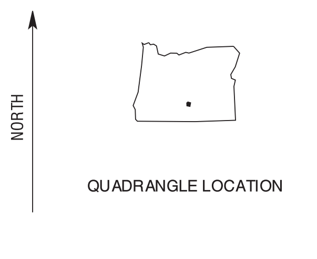
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

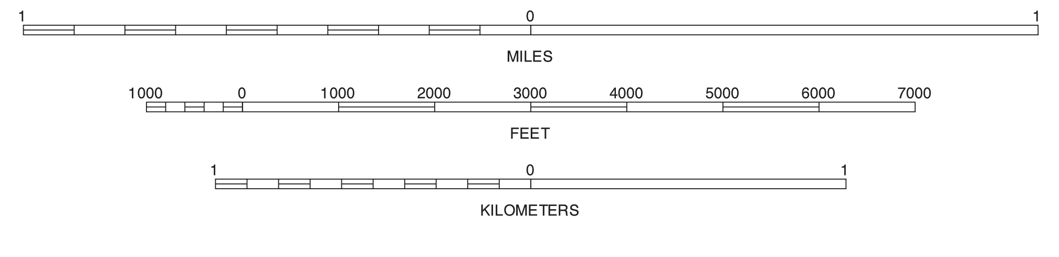
LAKE COUNTY, OREGON, NORTHERN PART
BULL LAKE QUADRANGLE
SHEET NUMBER 62 OF 89



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.





54	55	56
61		63
68	69	70

54 SAINT PATRICK MOUNTAIN
55 SHEEP ROCK
56 FIRE LAKE
61 DIABLO PEAK
63 DIATOMITE RESERVOIR
68 LOCO LAKE
69 SHARP TOP
70 BISCUIT POINT

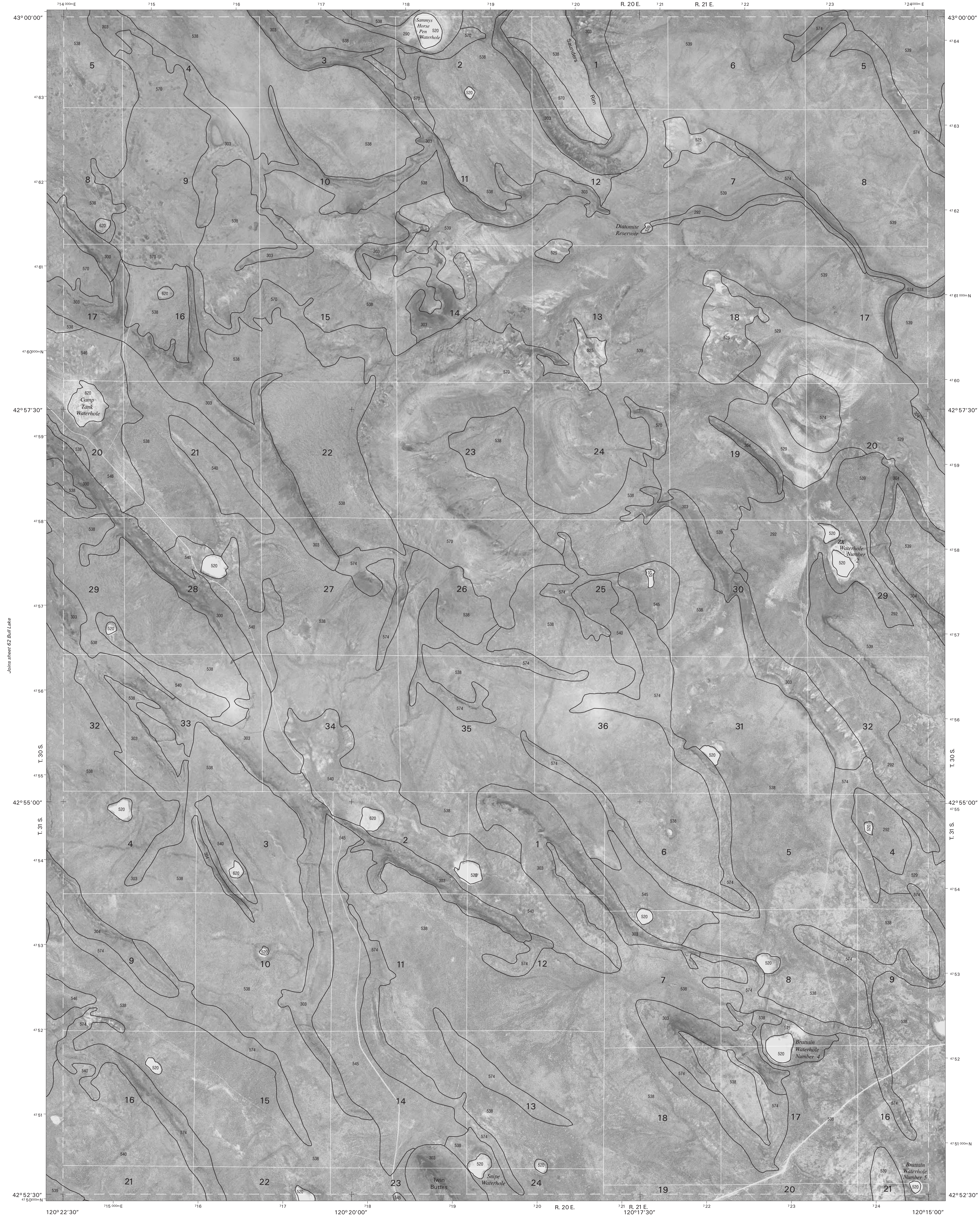
INDEX TO ADJOINING 7.5 MAPS

BULL LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 62 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

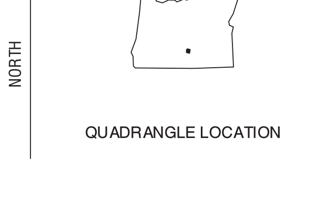
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
DIATOMITE RESERVOIR QUADRANGLE
SHEET NUMBER 63 OF 89



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



SCALE 1:24000

MILES

FEET

KILOMETERS

55	56	57
62		64
69	70	71

55	SHEEP ROCK
56	FIRE LAKE
57	POVERTY BASIN NORTH
62	BULL LAKE
64	POVERTY BASIN SOUTH
69	SHARP TOP
70	BISCUIT POINT
71	SAWED HORN

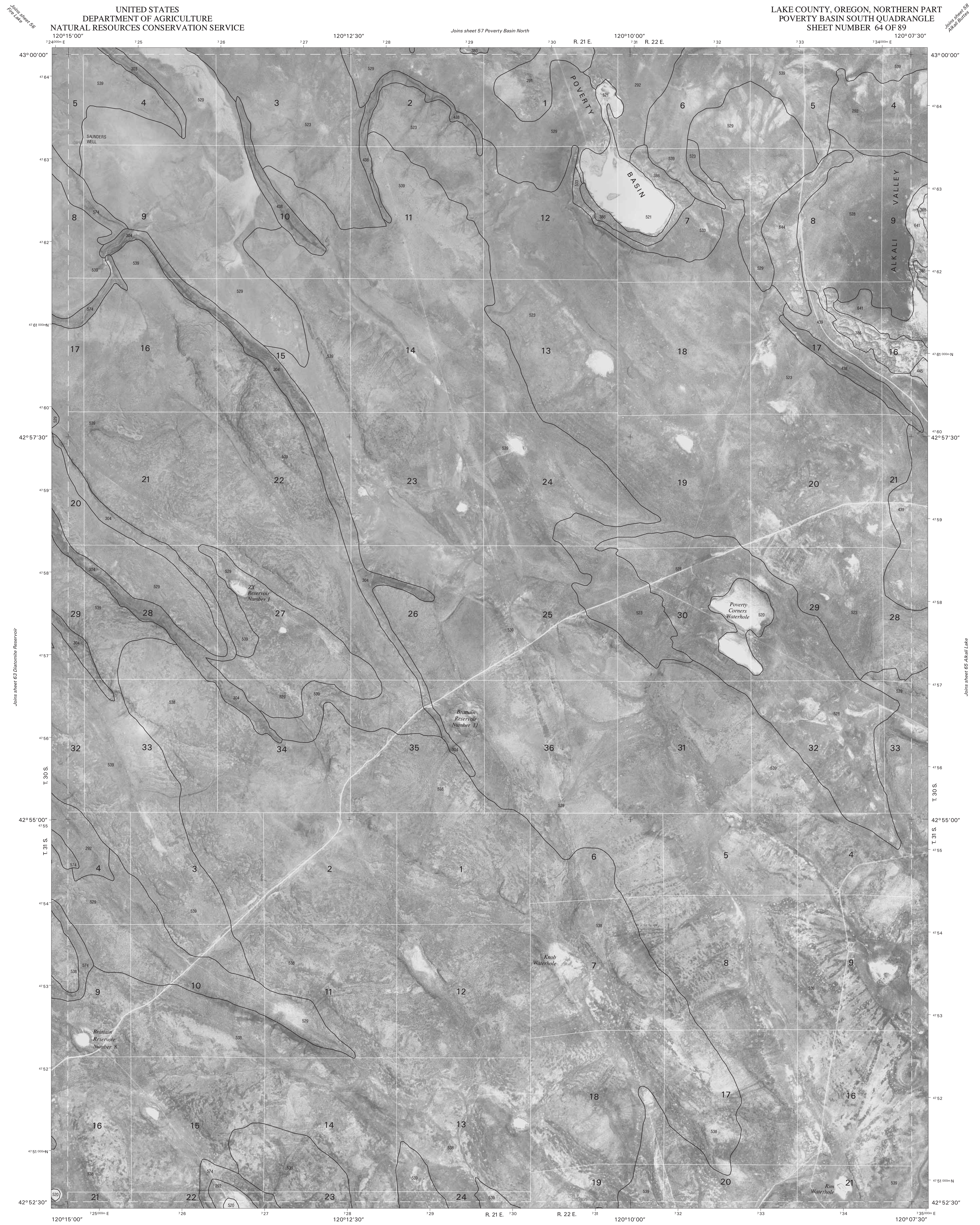
INDEX TO ADJOINING 7.5 MAPS

DIATOMITE RESERVOIR, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 63 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

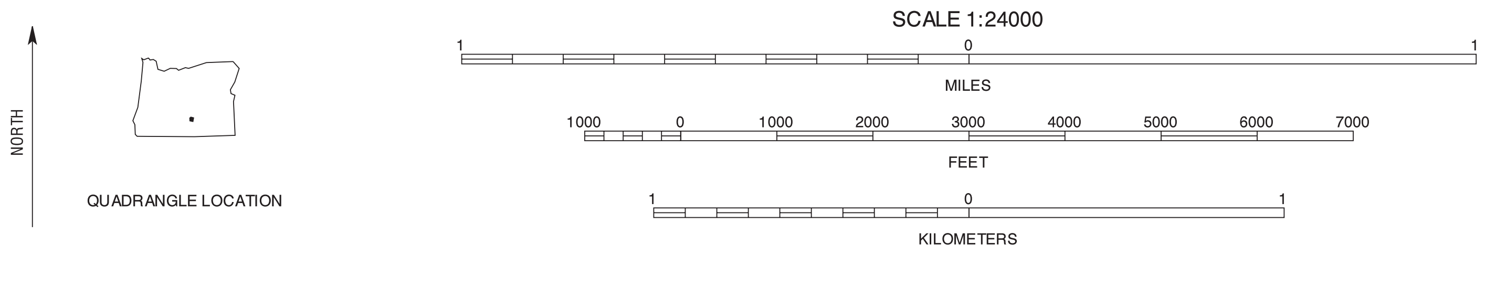
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
POVERTY BASIN SOUTH QUADRANGLE
SHEET NUMBER 64 OF 89


Joins sheet 56 Fire Lake
Joins sheet 57 Poverty Basin North
Joins sheet 58 Alkali Buttes
Joins sheet 63 Diatomite Reservoir
Joins sheet 65 Alkali Lake
Joins sheet 70 Biscuit Point
Joins sheet 71 Sawed Horn
Joins sheet 72 Coleman Hills
120°15′00″
120°12′30″
120°10′00″
120°07′30″
43°00′00″
42°57′30″
42°55′00″
42°52′30″
R. 21 E.
R. 22 E.
T. 30 S.
T. 31 S.
POVERTY BASIN
ALKALI VALLEY
SAUNDERS WELL
ZX Reservoir Number 1
Poverty Corners Waterhole
Brattain Reservoir Number 11
Knob Waterhole
Brattain Reservoir Number 8
Rim Waterhole

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



56	57	58
63		65
70	71	72

56 FIRE LAKE
57 POVERTY BASIN NORTH
58 ALKALI BUTTES
63 DIATOMITE RESERVOIR
65 ALKALI LAKE
70 BISCUIT POINT
71 SAWED HORN
72 COLEMAN HILLS

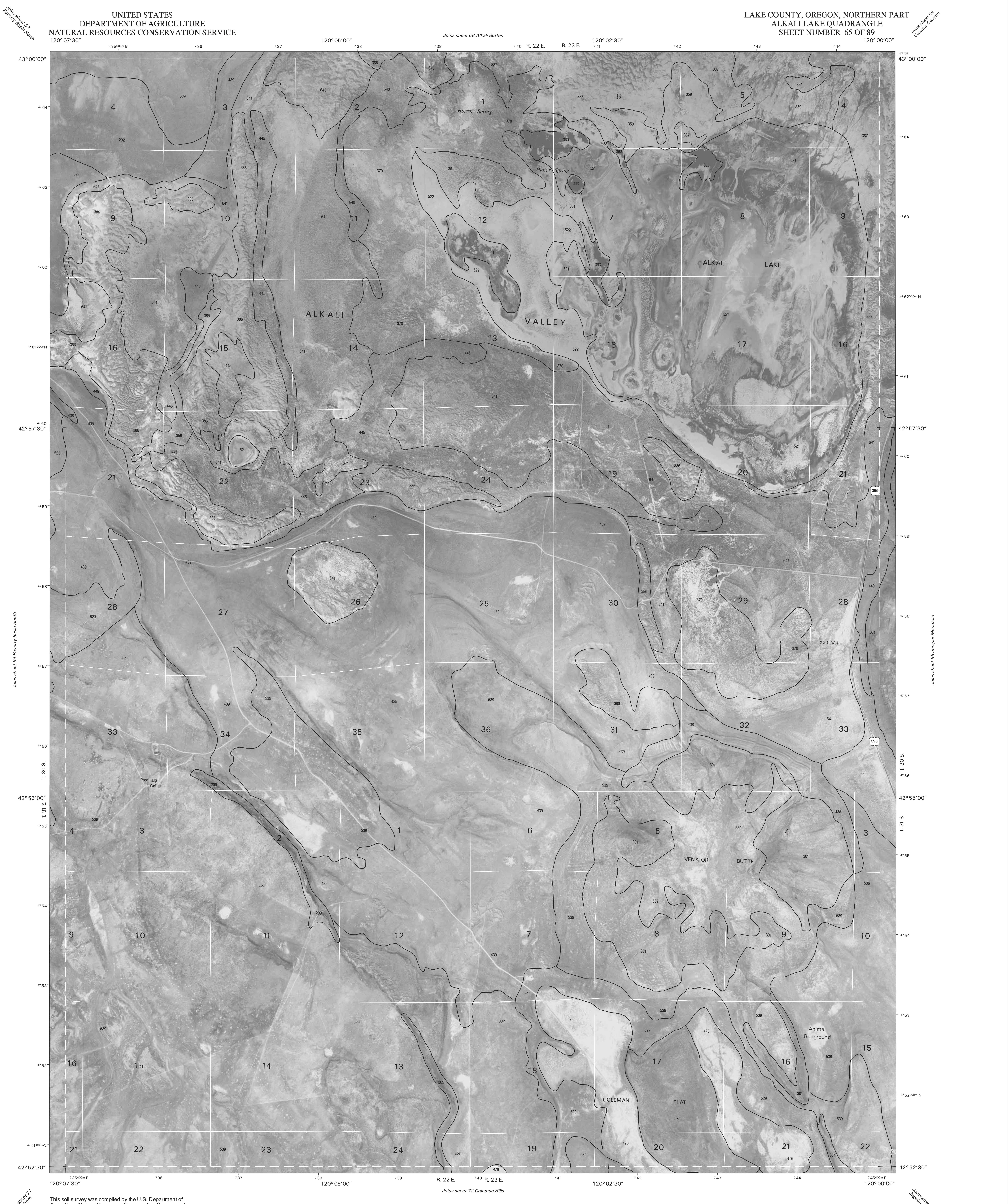
INDEX TO ADJOINING 7.5 MAPS

POVERTY BASIN SOUTH, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 64 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

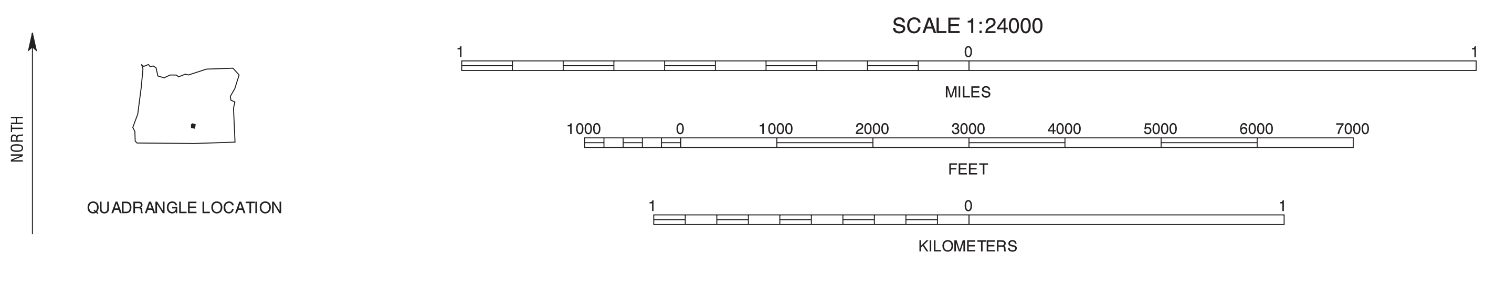
LAKE COUNTY, OREGON, NORTHERN PART
ALKALI LAKE QUADRANGLE
SHEET NUMBER 65 OF 89



Joins sheet 57 Poverty Basin North
Joins sheet 58 Alkali Buttes
Joins sheet 59 Venator Canyon
Joins sheet 64 Poverty Basin South
Joins sheet 66 Juniper Mountain
Joins sheet 71 Sawed Horn
Joins sheet 72 Coleman Hills
Joins sheet 73 Sagebrush Knoll
120° 07′30″
120° 05′00″
120° 02′30″
120° 00′00″
43° 00′00″
42° 57′30″
42° 55′00″
42° 52′30″
R. 22 E.
R. 23 E.
T. 30 S.
T. 31 S.
Horror Spring
Hutton Spring
ALKALI
VALLEY
ALKALI
LAKE
Poor Jug Well
2 X 4 Well
VENATOR
BUTTE
Animal Bedground
COLEMAN
FLAT
395

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



57	58	59
64		66
71	72	73

57 POVERTY BASIN NORTH
58 ALKALI BUTTES
59 VENATOR CANYON
64 POVERTY BASIN SOUTH
66 JUNIPER MOUNTAIN
71 SAWED HORN
72 COLEMAN HILLS
73 SAGEBRUSH KNOLL

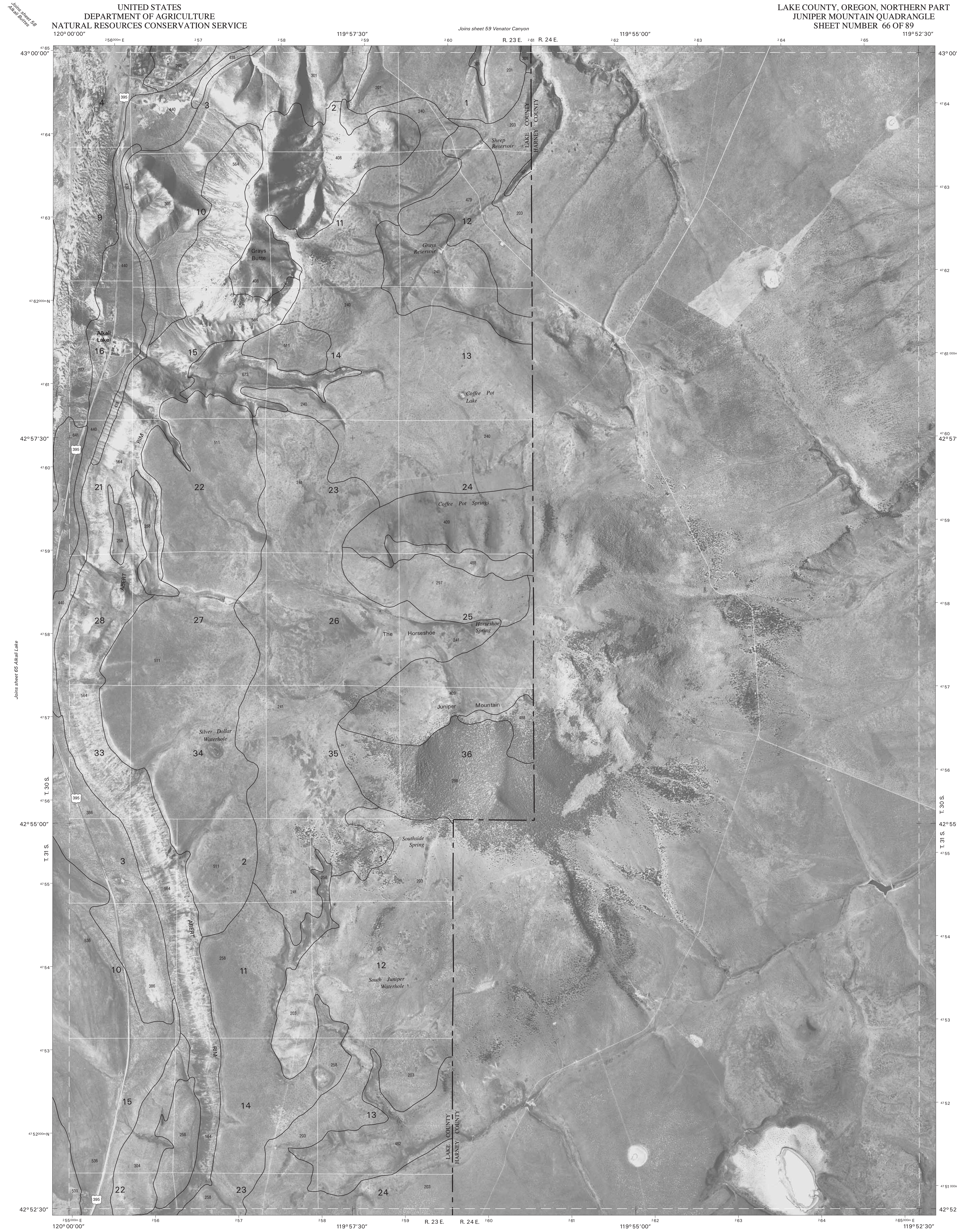
INDEX TO ADJOINING 7.5 MAPS

ALKALI LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 65 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

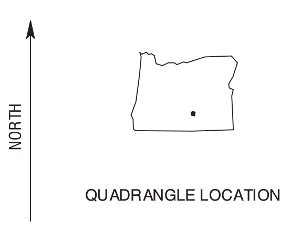
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
JUNIPER MOUNTAIN QUADRANGLE
SHEET NUMBER 66 OF 89



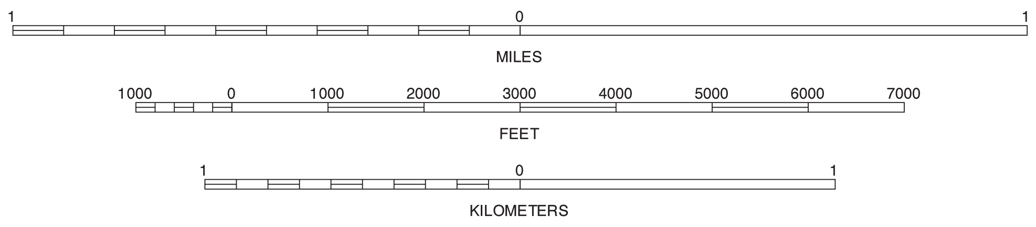
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

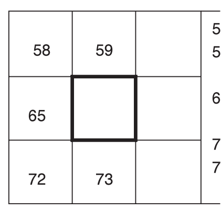
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





58 ALKALI BUTTES
59 VENATOR CANYON
65 ALKALI LAKE
72 COLEMAN HILLS
73 SAGEBRUSH KNOLL

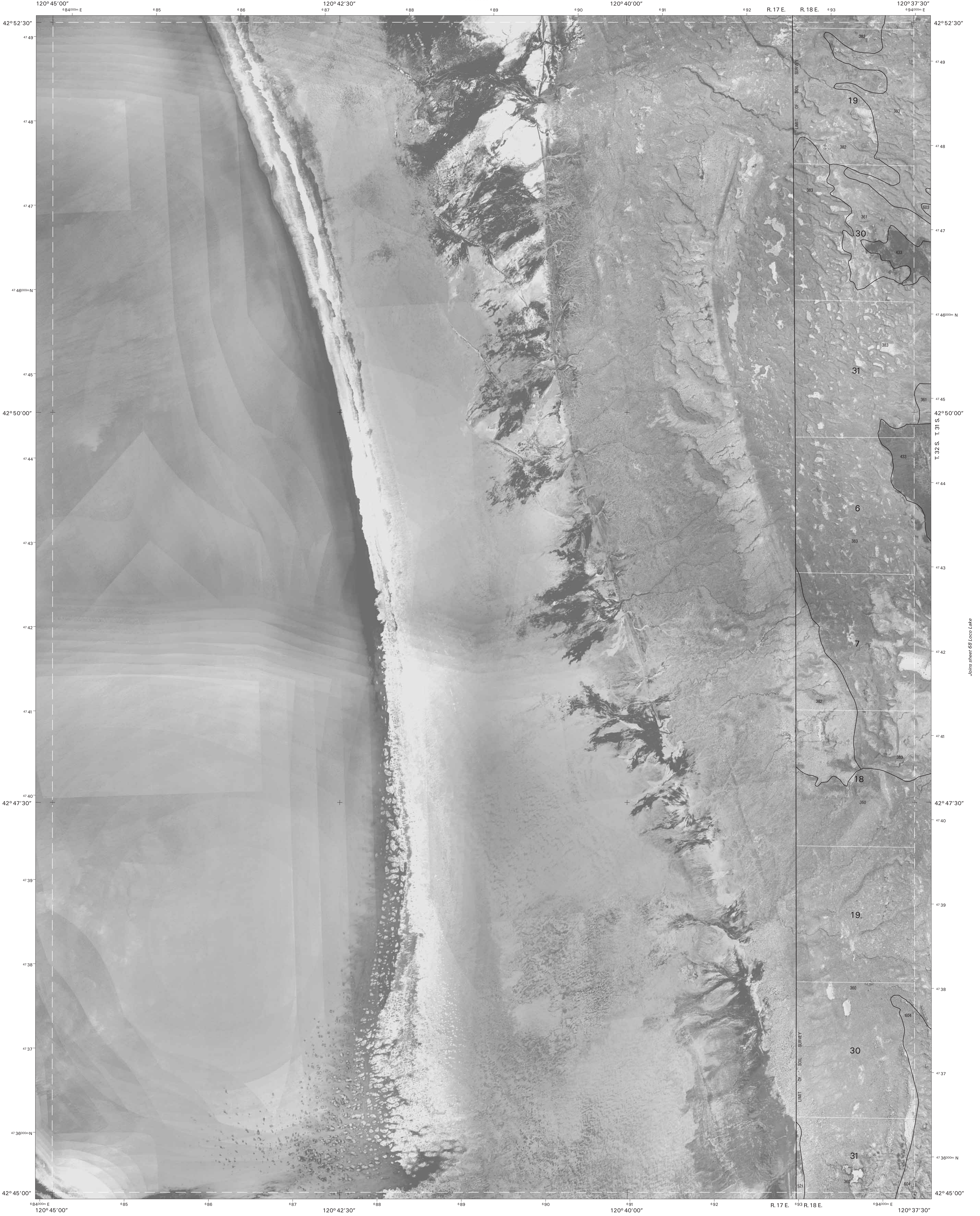
INDEX TO ADJOINING 7.5 MAPS

JUNIPER MOUNTAIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 66 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

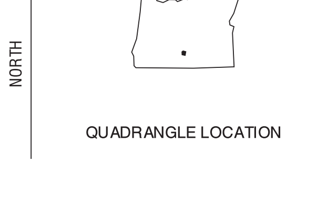
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SOUTH OF ANA RIVER QUADRANGLE
SHEET NUMBER 67 OF 89



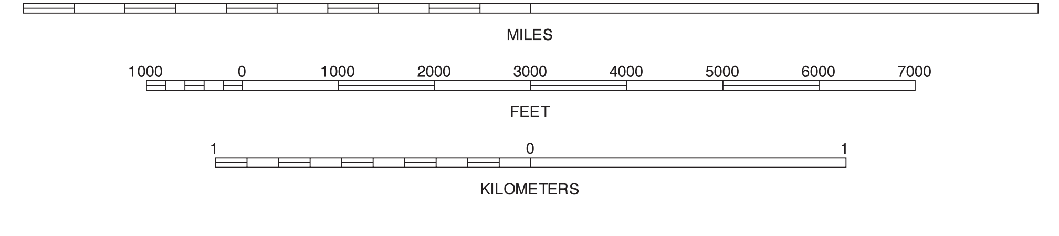
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

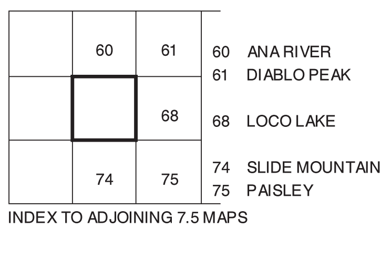
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





60 ANA RIVER
61 DIABLO PEAK
68 LOCO LAKE
74 SLIDE MOUNTAIN
75 PAISLEY

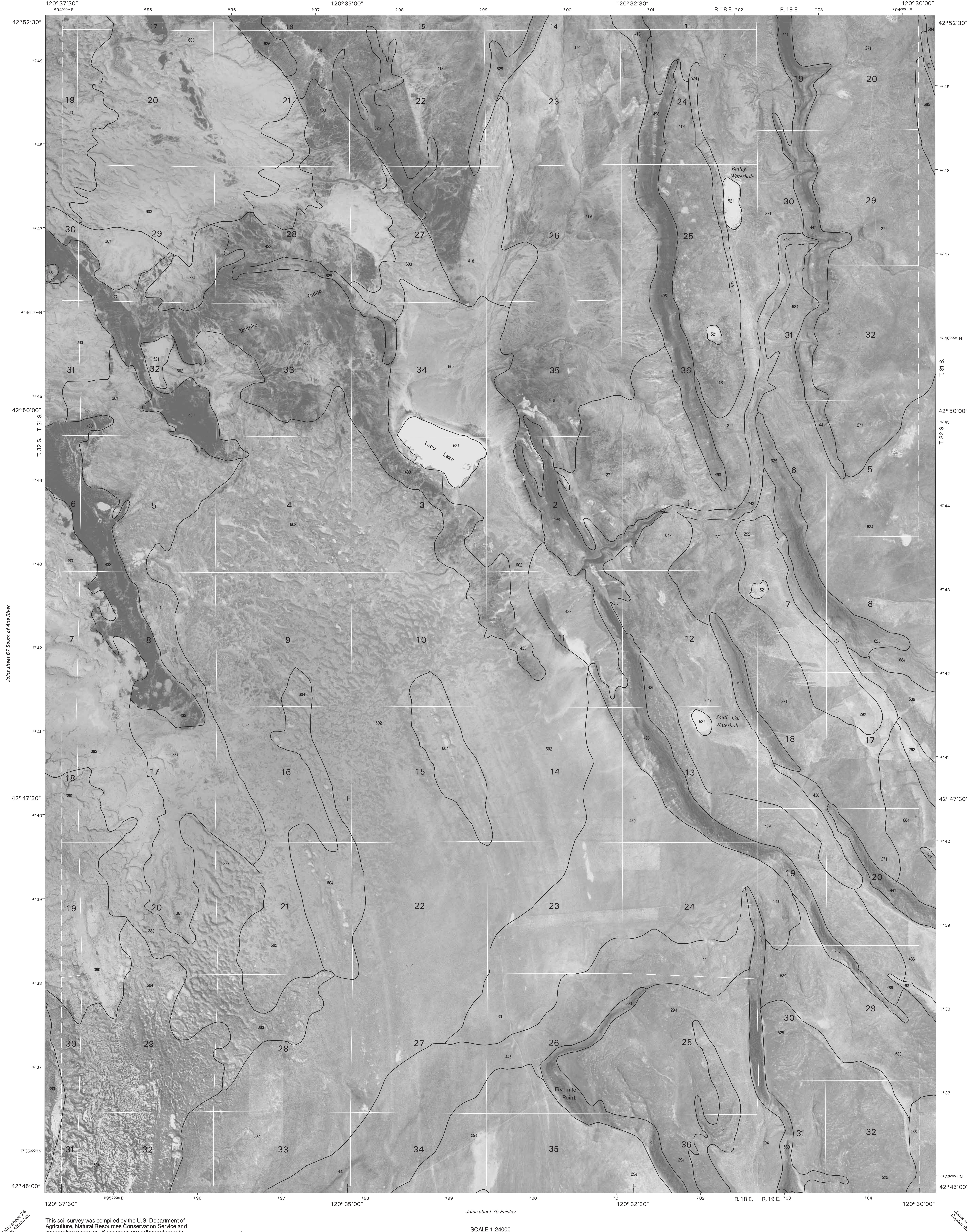
INDEX TO ADJOINING 7.5 MAPS

SOUTH OF ANA RIVER, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 67 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

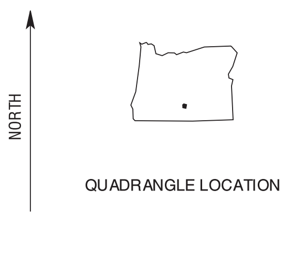
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
LOCO LAKE QUADRANGLE
SHEET NUMBER 68 OF 89



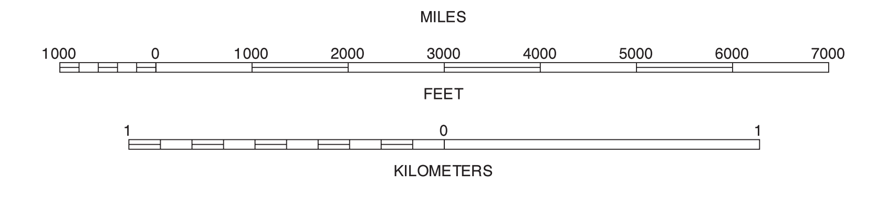
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



60	61	62
67		69
74	75	76

60 ANA RIVER
61 DIABLO PEAK
62 BULL LAKE
67 SOUTH OF ANA RIVER
69 SHARP TOP
74 SLIDE MOUNTAIN
75 PAISLEY
76 COGLAN BUTTES

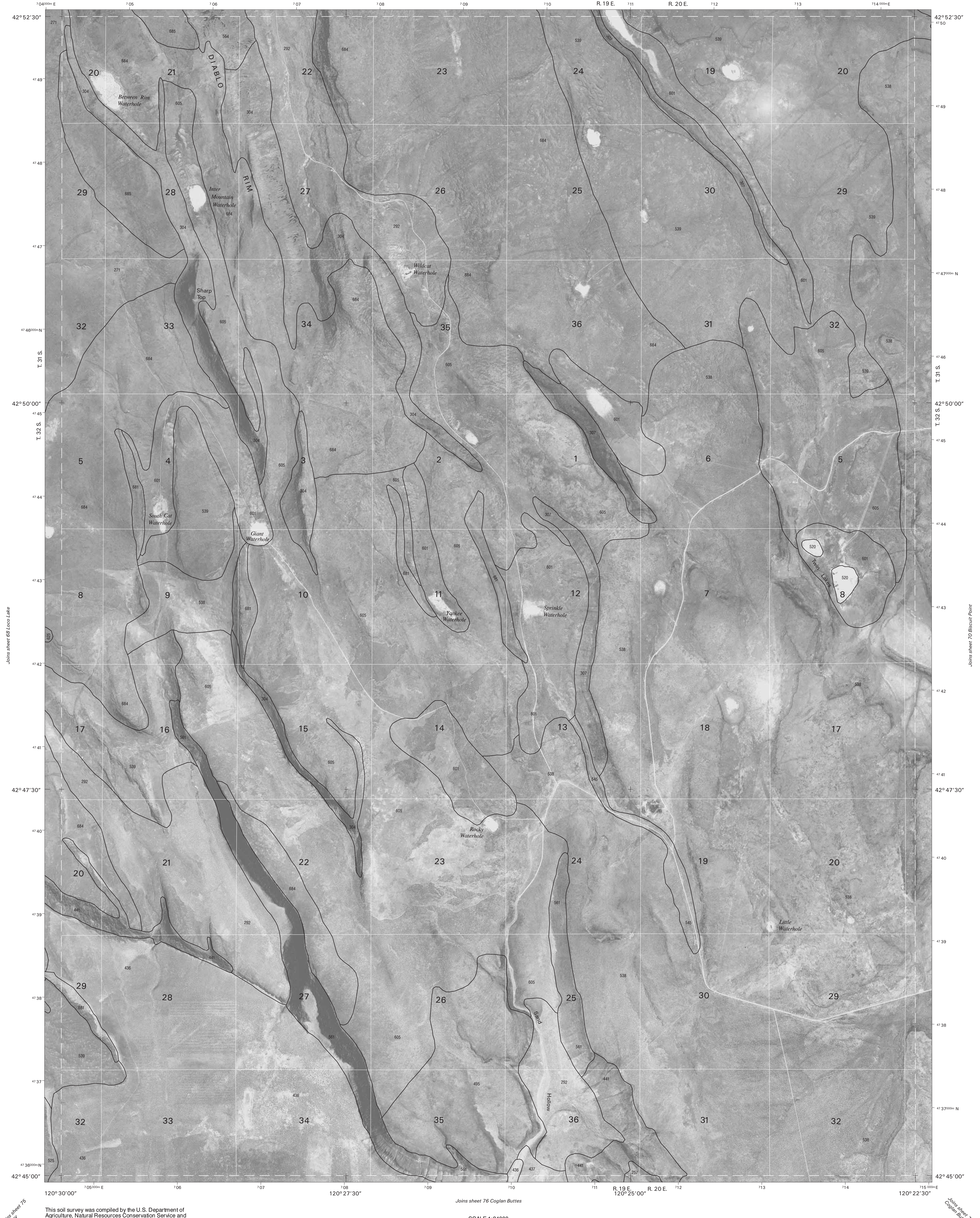
INDEX TO ADJOINING 7.5 MAPS

LOCO LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 68 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

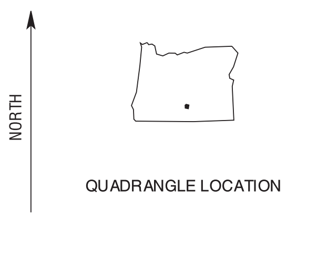
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SHARP TOP QUADRANGLE
SHEET NUMBER 69 OF 89



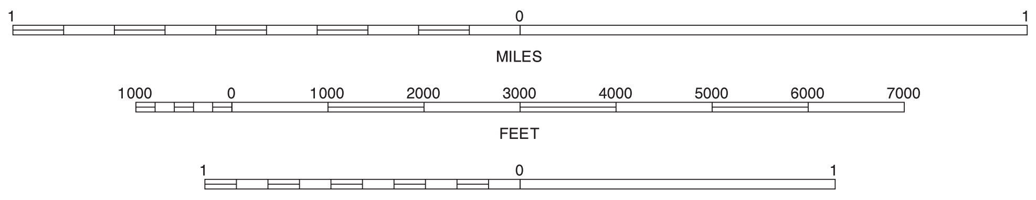
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



61	62	63
68		70
75	76	77

61 DIABLO PEAK
62 BULL LAKE
63 DIATOMITE RESERVOIR
68 LOCO LAKE
70 BISCUIT POINT
75 PAISLEY
76 COGLAN BUTTES
77 COGLAN BUTTES NE

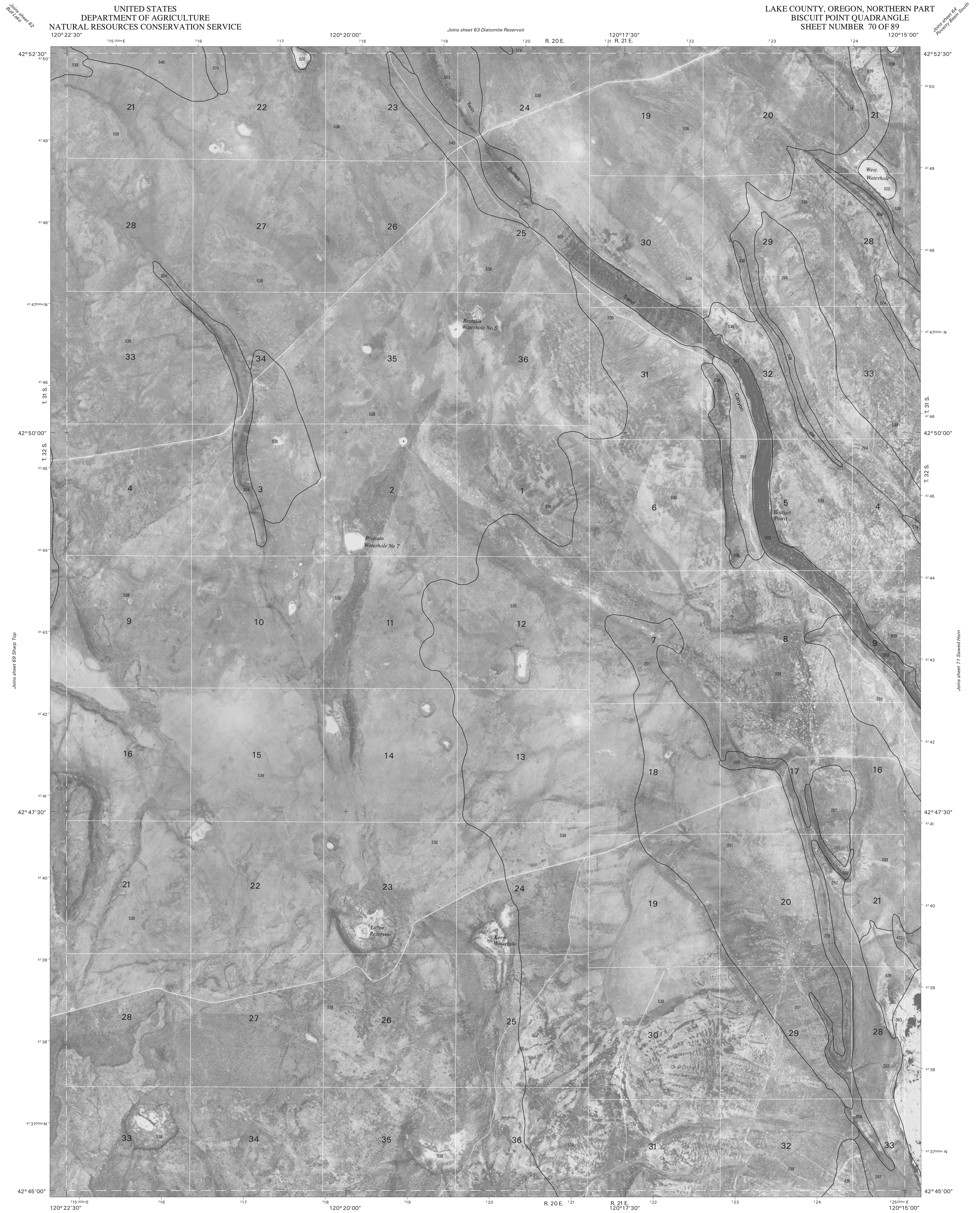
INDEX TO ADJOINING 7.5 MAPS

SHARP TOP, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 69 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

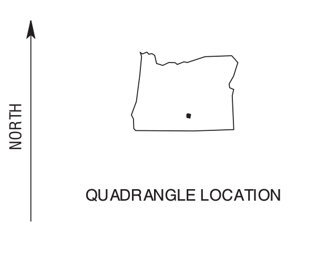
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
BISCUIT POINT QUADRANGLE
SHEET NUMBER 70 OF 89



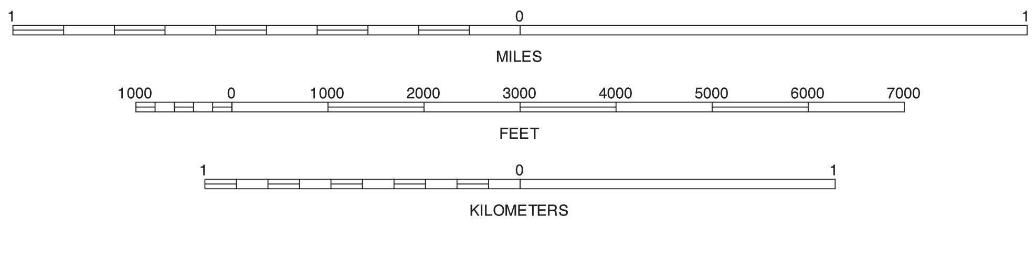
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



62	BULL LAKE
63	DIATOMITE RESERVOIR
64	POVERTY BASIN SOUTH
69	SHARP TOP
71	SAWED HORN
76	COGLAN BUTTES
77	COGLAN BUTTES NE
78	LAKE ABERT NORTH

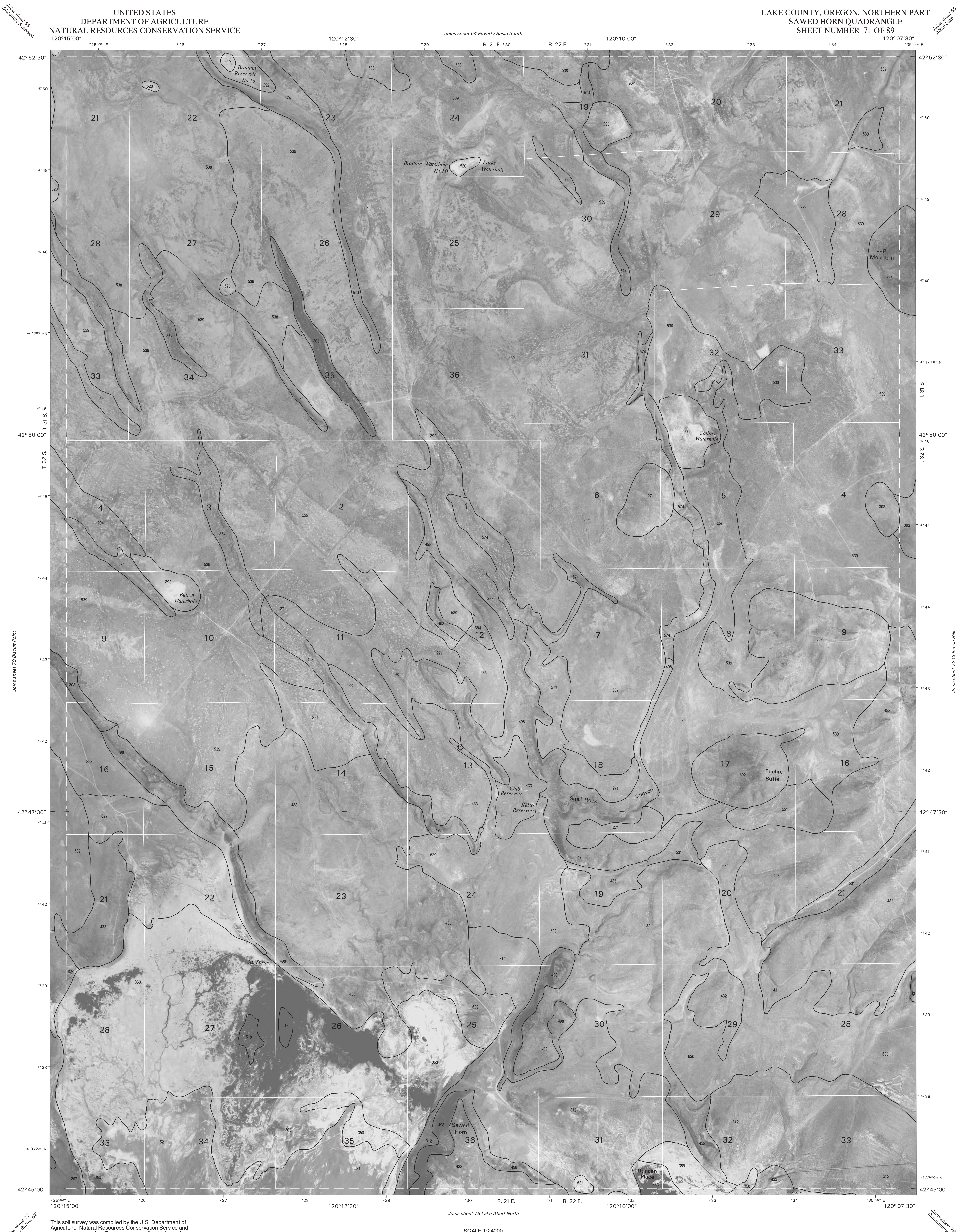
INDEX TO ADJOINING 7.5 MAPS

BISCUIT POINT, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 70 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

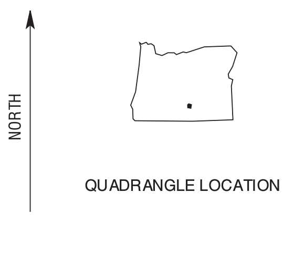
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SAWED HORN QUADRANGLE
SHEET NUMBER 71 OF 89

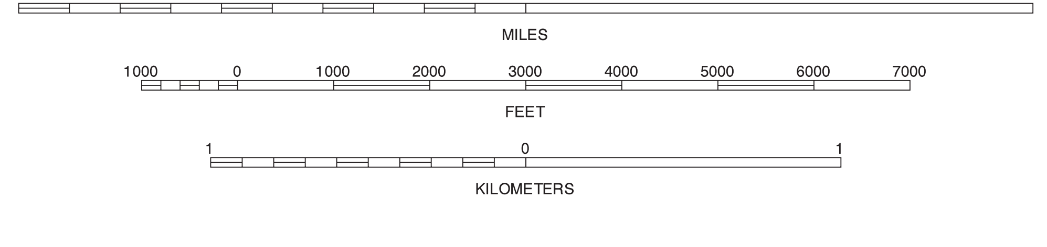


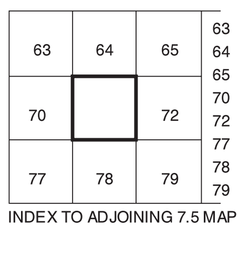
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION





63	DIATOMITE RESERVOIR
64	POVERTY BASIN SOUTH
65	ALKALI LAKE
70	BISCUIT POINT
72	COLEMAN HILLS
77	COGLAN BUTTES NE
78	LAKE ABERT NORTH
79	COMMODORE RIDGE

INDEX TO ADJOINING 7.5 MAPS

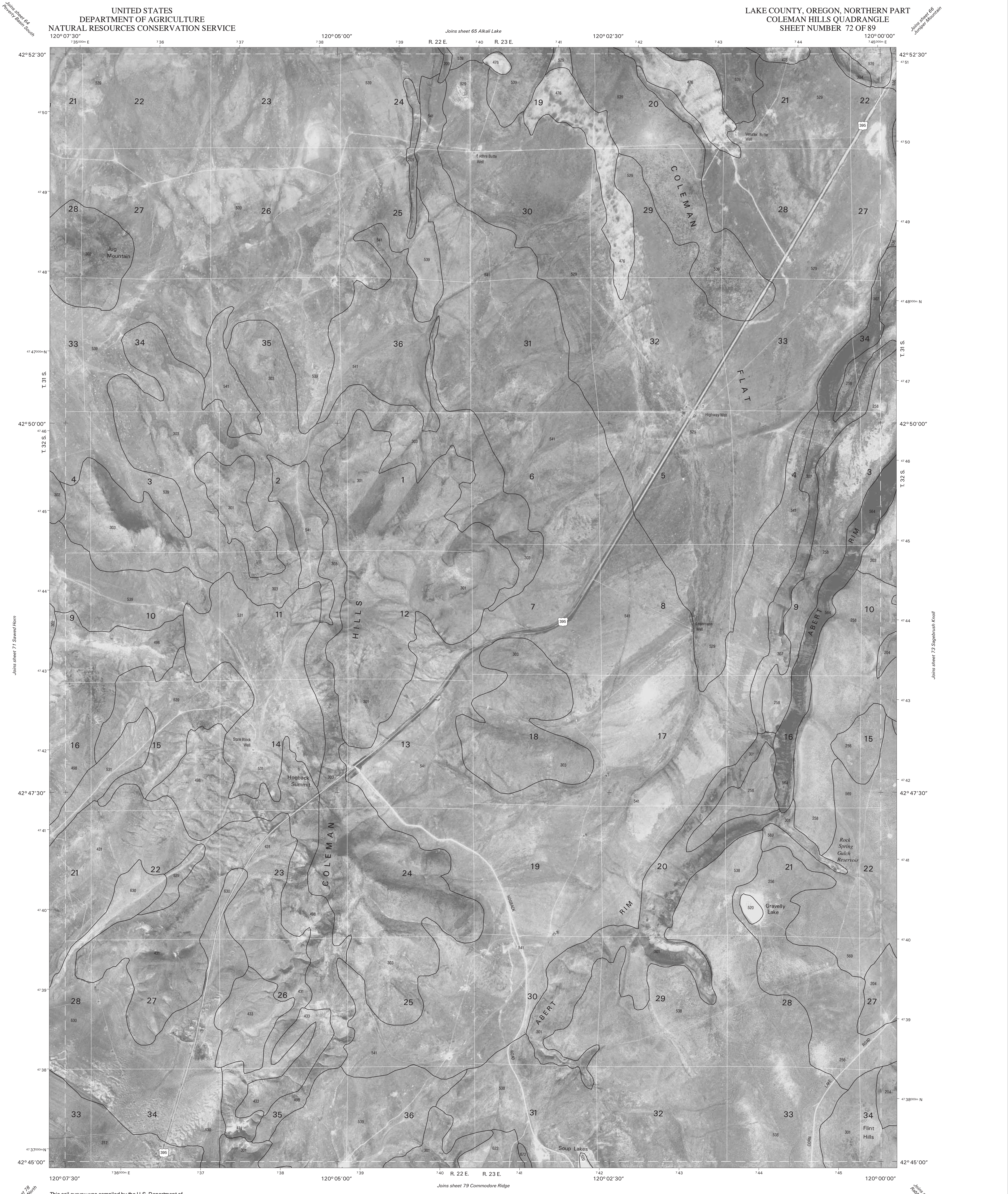
SAWED HORN, OREGON

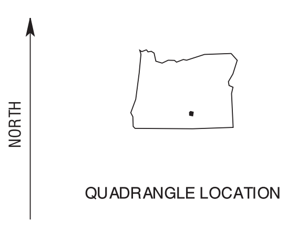
7.5 MINUTE SERIES
SHEET NUMBER 71 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

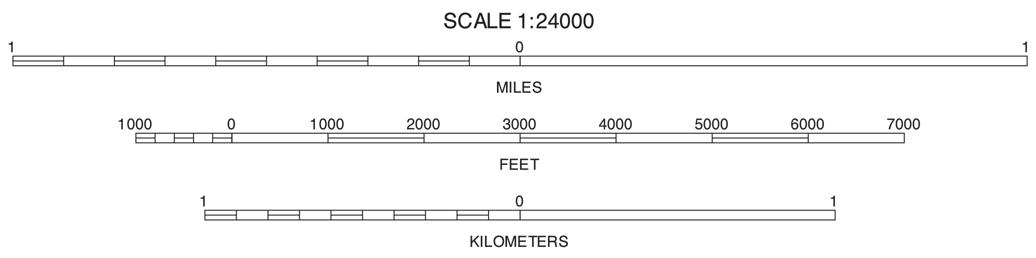
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
COLEMAN HILLS QUADRANGLE
SHEET NUMBER 72 OF 89





QUADRANGLE LOCATION



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

64	65	66
71		73
78	79	80

64 POVERTY BASIN SOUTH
65 ALKALI LAKE
66 JUNIPER MOUNTAIN
71 SAWED HORN
73 SAGEBRUSH KNOLL
78 LAKE ABERT NORTH
79 COMMODORE RIDGE
80 RABBIT HILLS NW

INDEX TO ADJOINING 7.5 MAPS

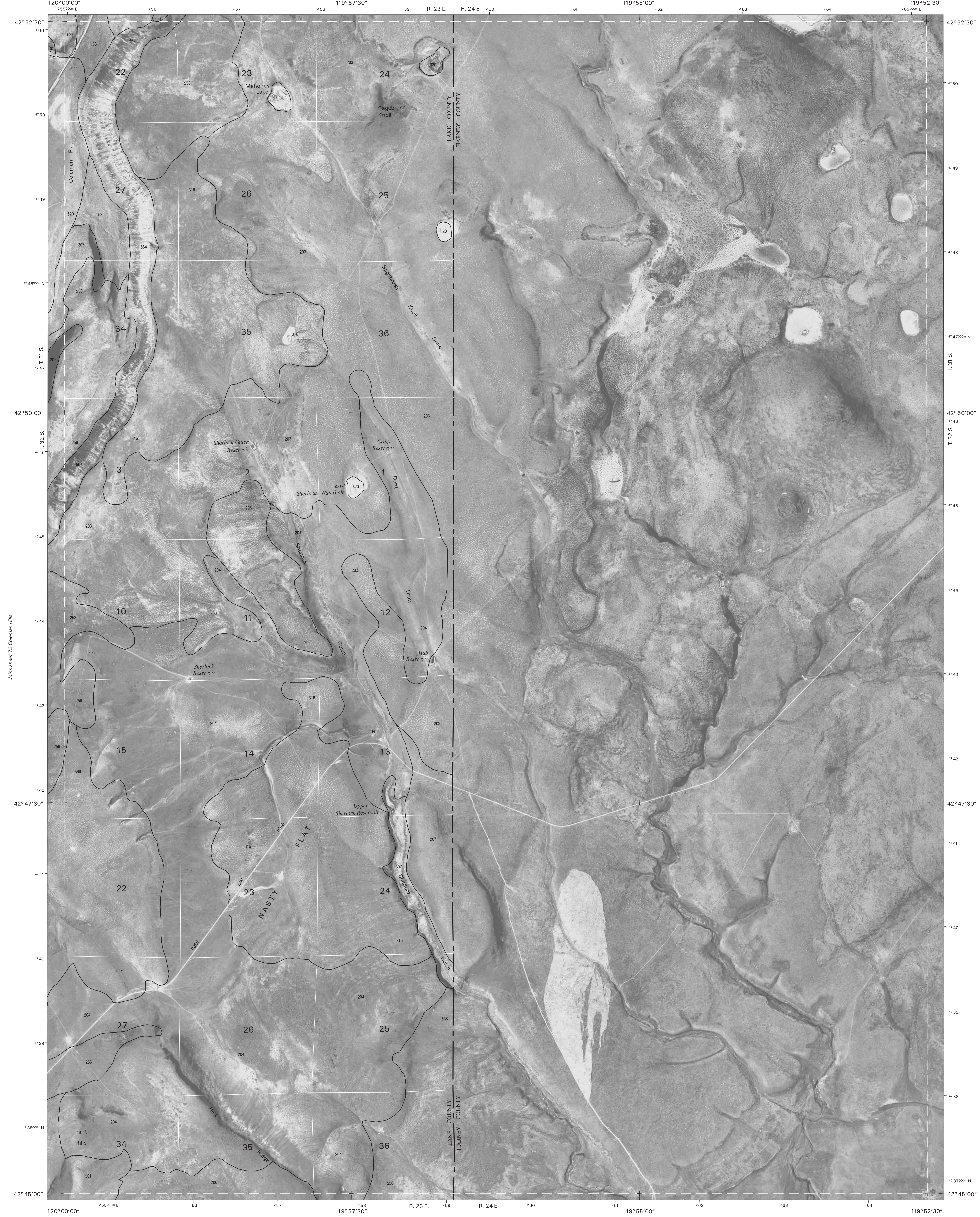
COLEMAN HILLS, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 72 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

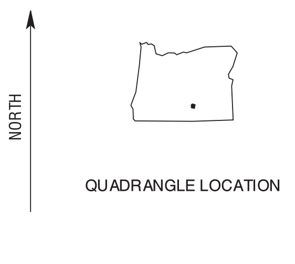
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SAGEBRUSH KNOLL QUADRANGLE
SHEET NUMBER 73 OF 89



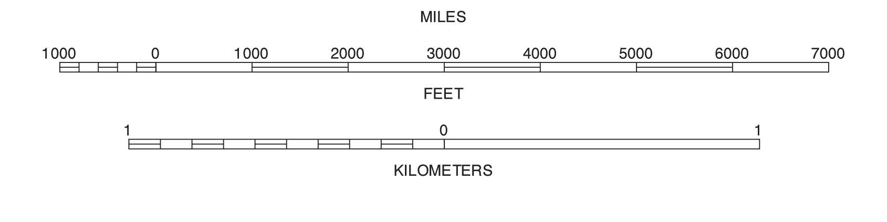
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

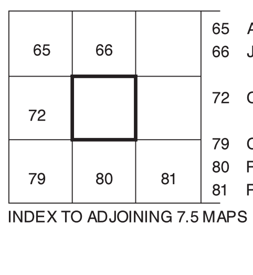
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





65 ALKALI LAKE
66 JUNIPER MOUNTAIN
72 COLEMAN HILLS
79 COMMODORE RIDGE
80 RABBIT HILLS NW
81 RABBIT HILLS NE

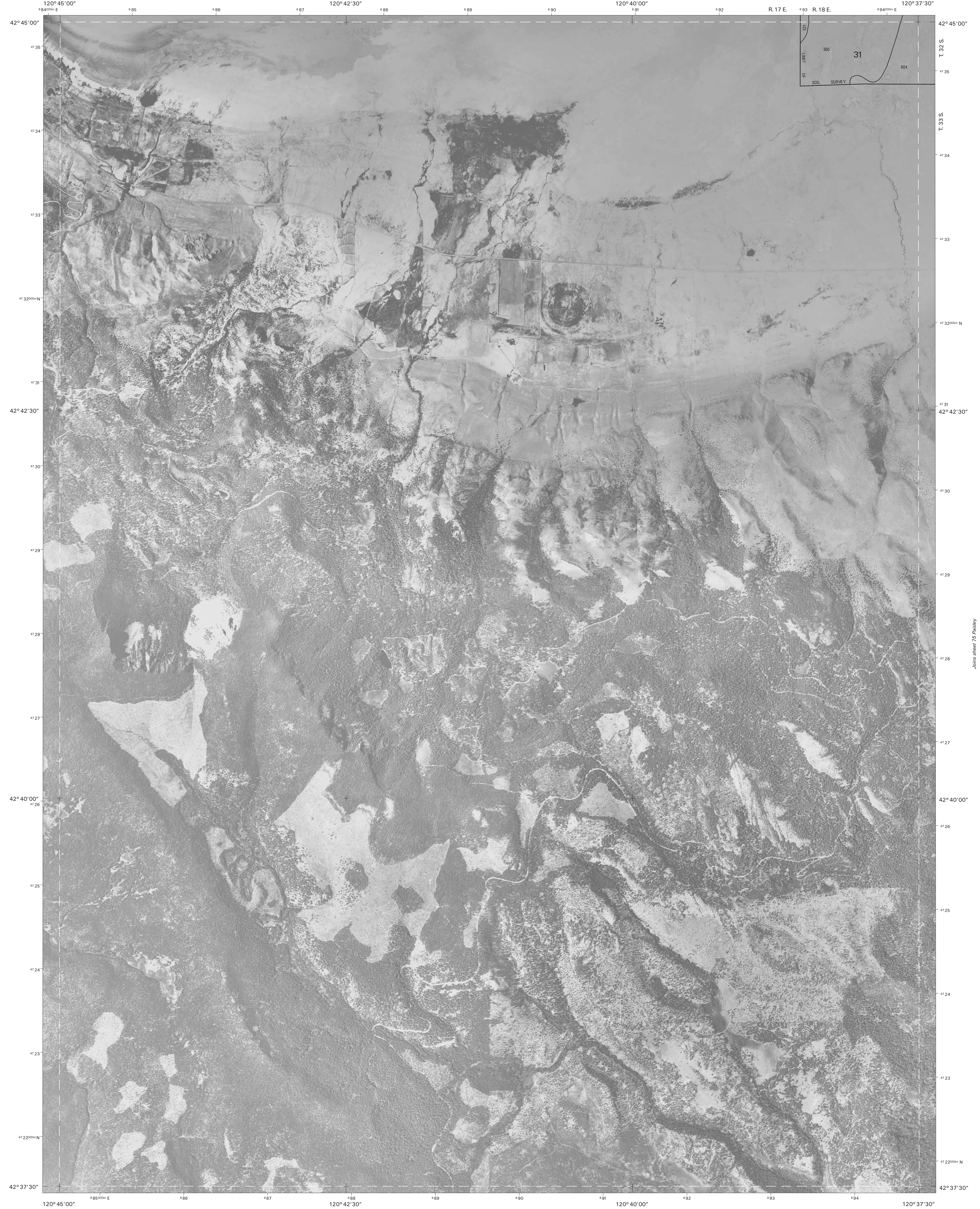
INDEX TO ADJOINING 7.5 MAPS

SAGEBRUSH KNOLL, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 73 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

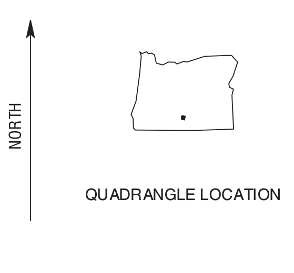
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
SLIDE MOUNTAIN QUADRANGLE
SHEET NUMBER 74 OF 89



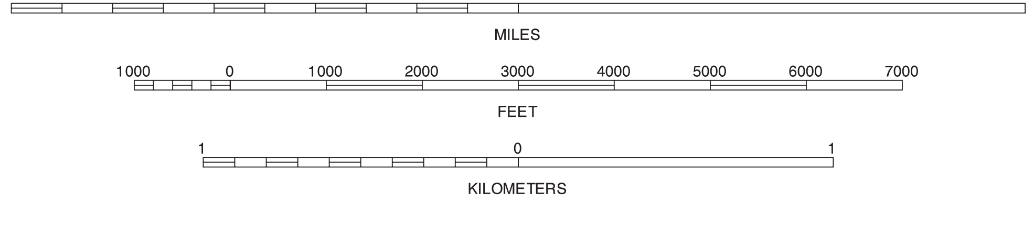
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

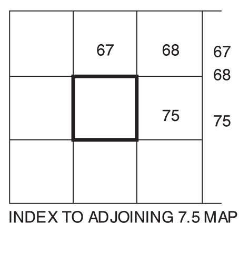
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





67 SOUTH OF ANA RIVER
68 LOCO LAKE
75 PAISLEY

INDEX TO ADJOINING 7.5 MAPS

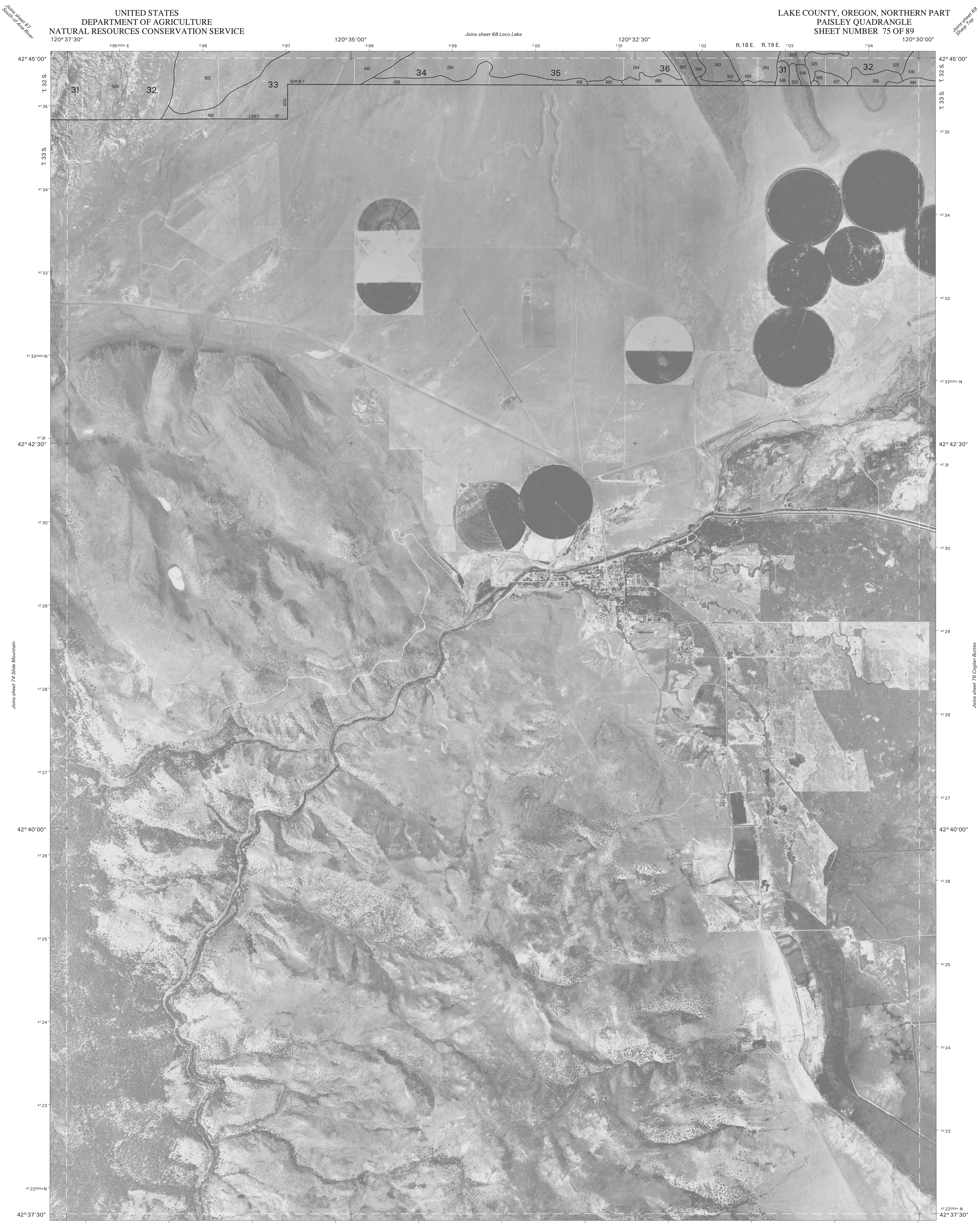
SLIDE MOUNTAIN, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 74 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

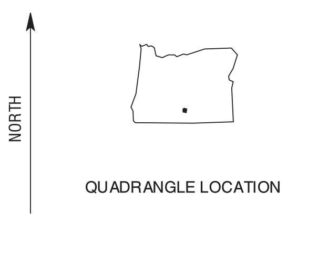
LAKE COUNTY, OREGON, NORTHERN PART
PAISLEY QUADRANGLE
SHEET NUMBER 75 OF 89



Joins sheet 83 Tucker Hill

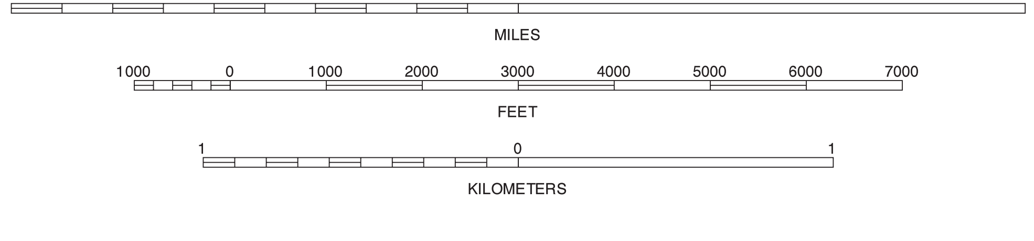
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

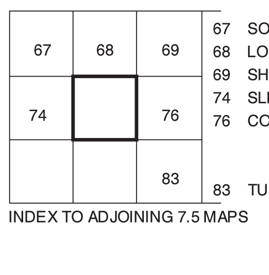
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





67 SOUTH OF ANA RIVER
68 LOCO LAKE
69 SHARP TOP
74 SLIDE MOUNTAIN
76 COGLAN BUTTES
83 TUCKER HILL

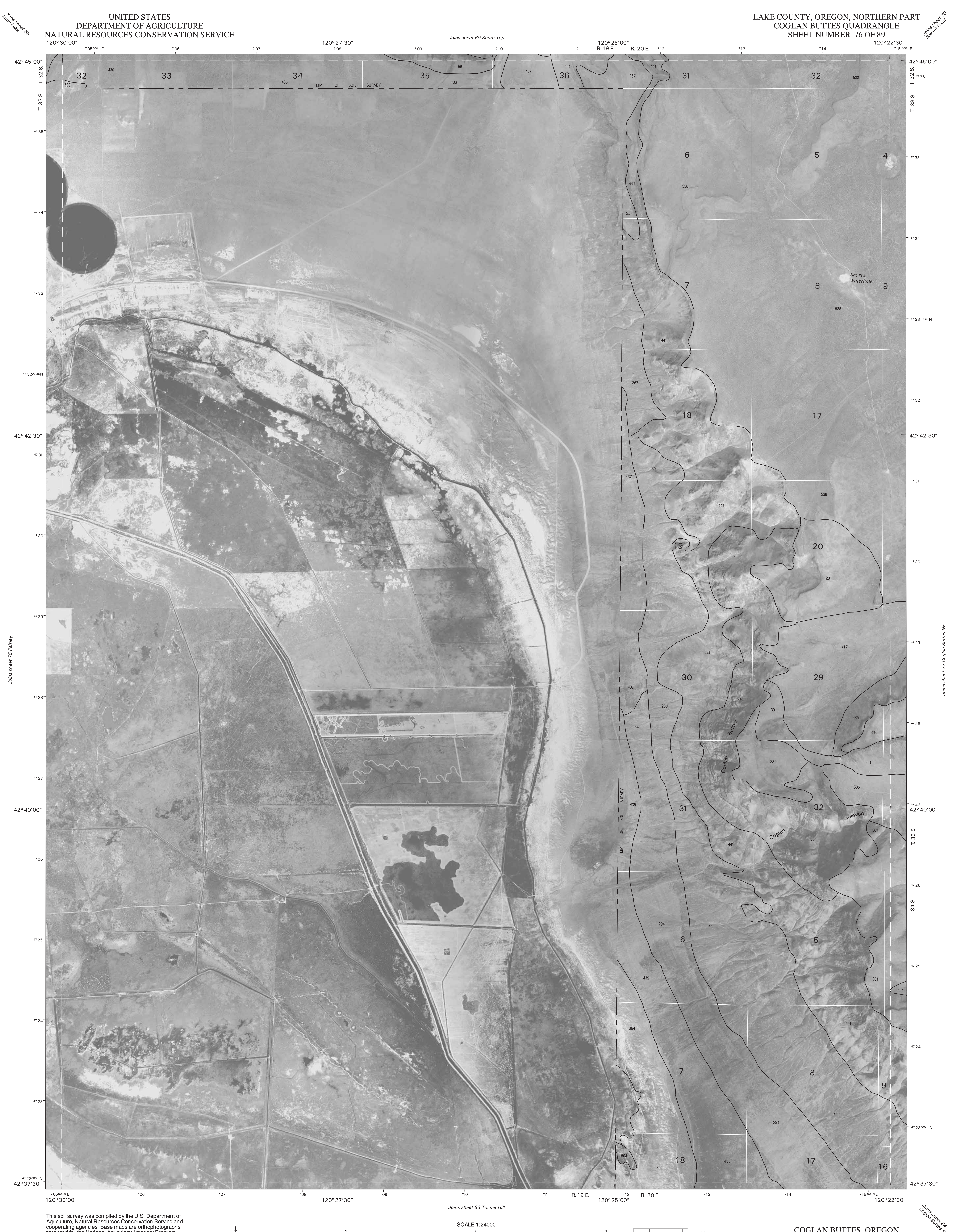
INDEX TO ADJOINING 7.5 MAPS

PAISLEY, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 75 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

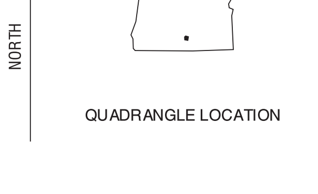
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
COGLAN BUTTES QUADRANGLE
SHEET NUMBER 76 OF 89



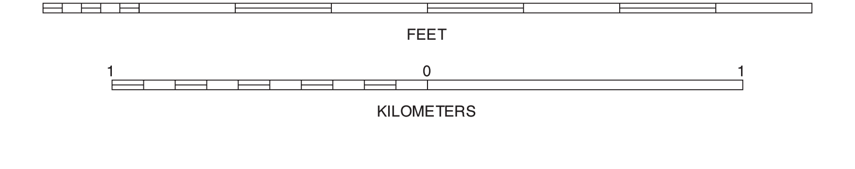
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



68	69	70
75		77
	83	84

68	LOCO LAKE
69	SHARP TOP
70	BISCUIT POINT
75	PAISLEY
77	COGLAN BUTTES NE
83	TUCKER HILL
84	COGLAN BUTTES SE

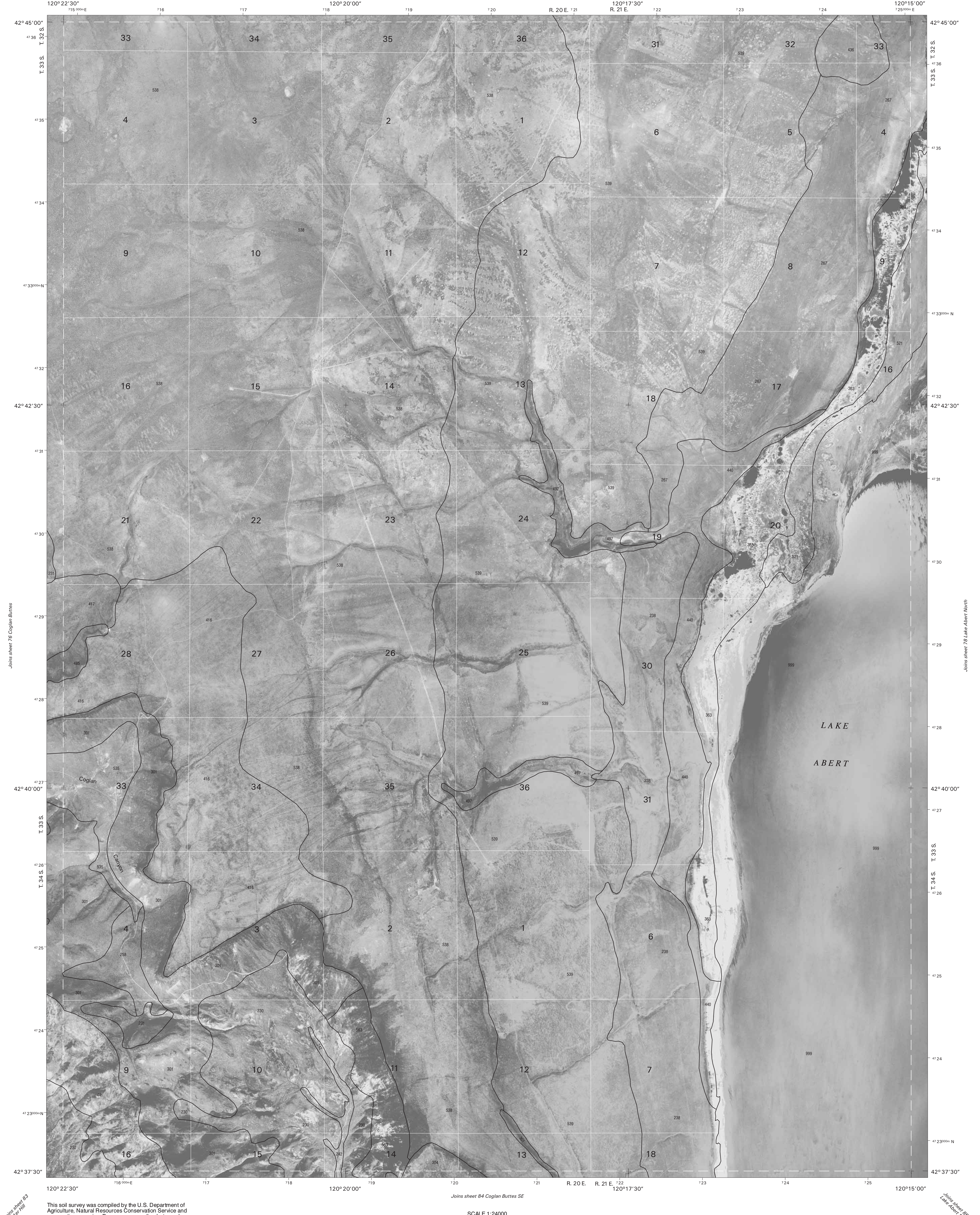
INDEX TO ADJOINING 7.5 MAPS

COGLAN BUTTES, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 76 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

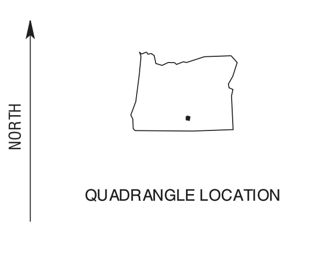
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
COGLAN BUTTES NE QUADRANGLE
SHEET NUMBER 77 OF 89

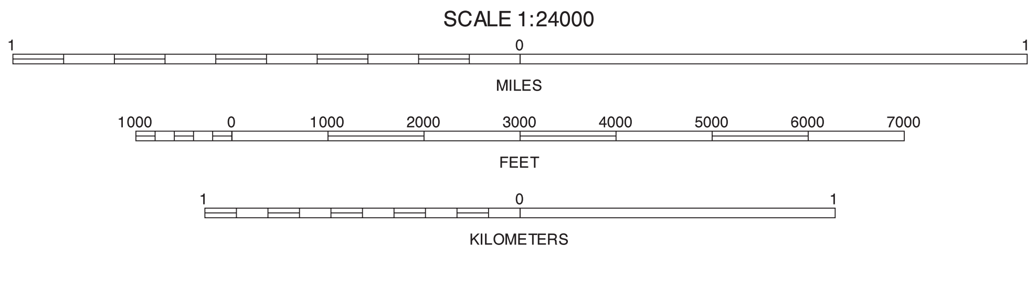


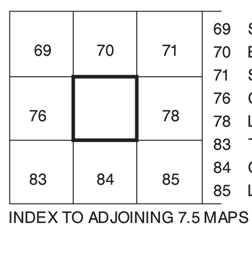
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION





69 SHARP TOP
70 BISCUIT POINT
71 SAWED HORN
76 COGLAN BUTTES
78 LAKE ABERT NORTH
83 TUCKER HILL
84 COGLAN BUTTES SE
85 LAKE ABERT SOUTH

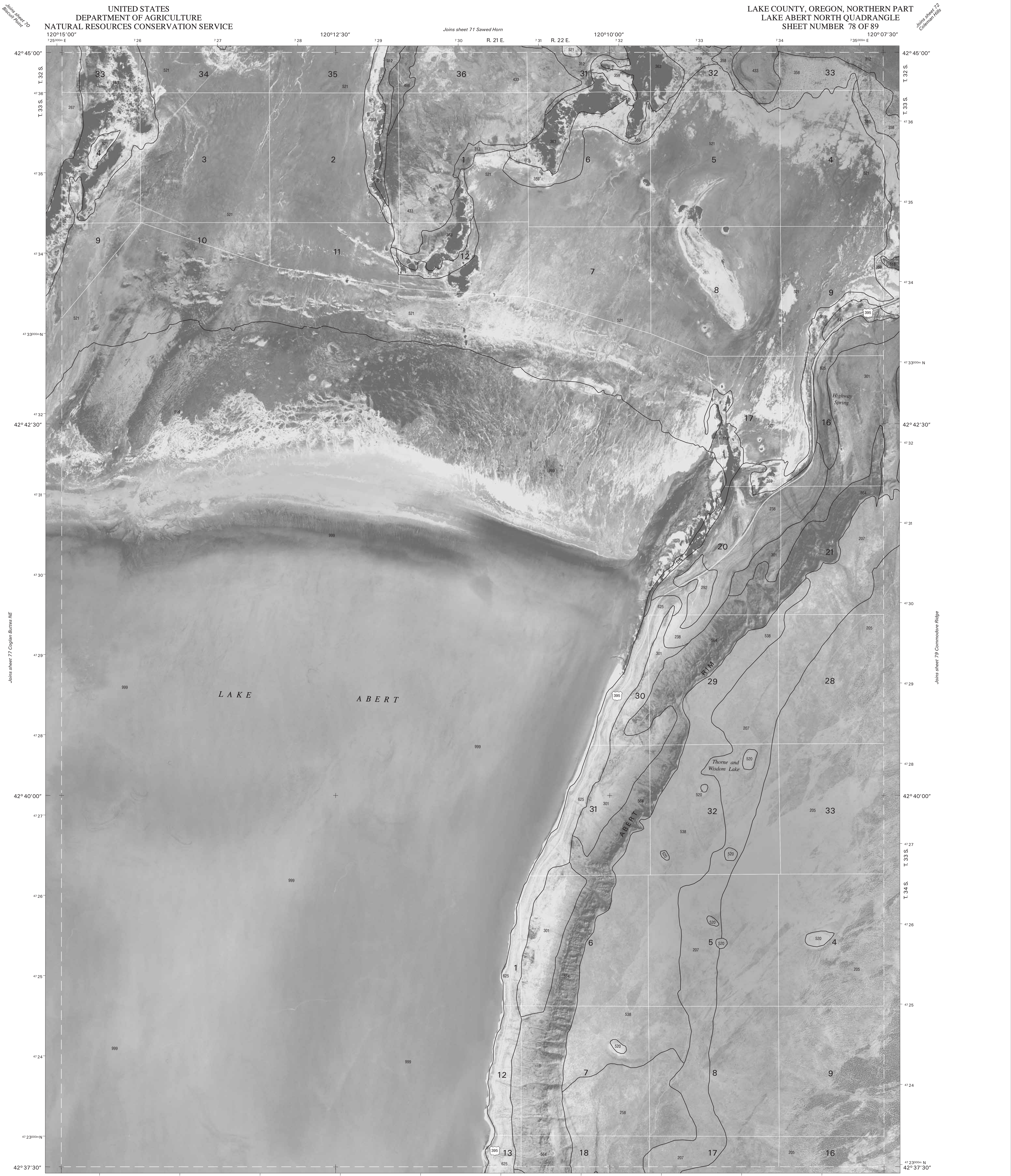
INDEX TO ADJOINING 7.5 MAPS

COGLAN BUTTES NE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 77 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
LAKE ABERT NORTH QUADRANGLE
SHEET NUMBER 78 OF 89

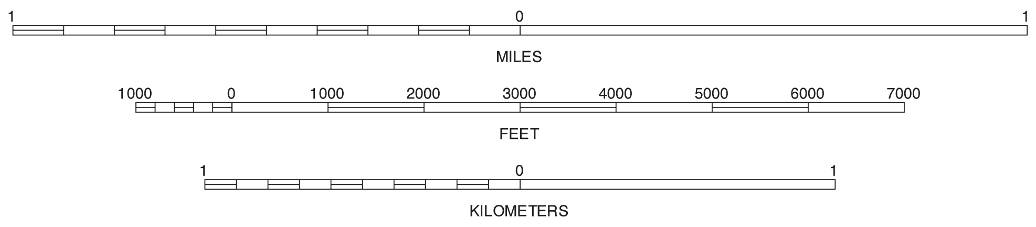


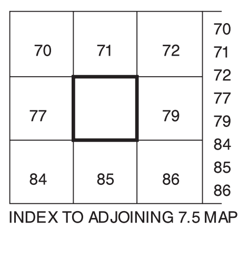
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION

SCALE 1:24000





70	BISCUIT POINT
71	SAWED HORN
72	COLEMAN HILLS
77	COGLAN BUTTES NE
79	COMMODORE RIDGE
84	COGLAN BUTTES SE
85	LAKE ABERT SOUTH
86	COOPER DRAW

INDEX TO ADJOINING 7.5 MAPS

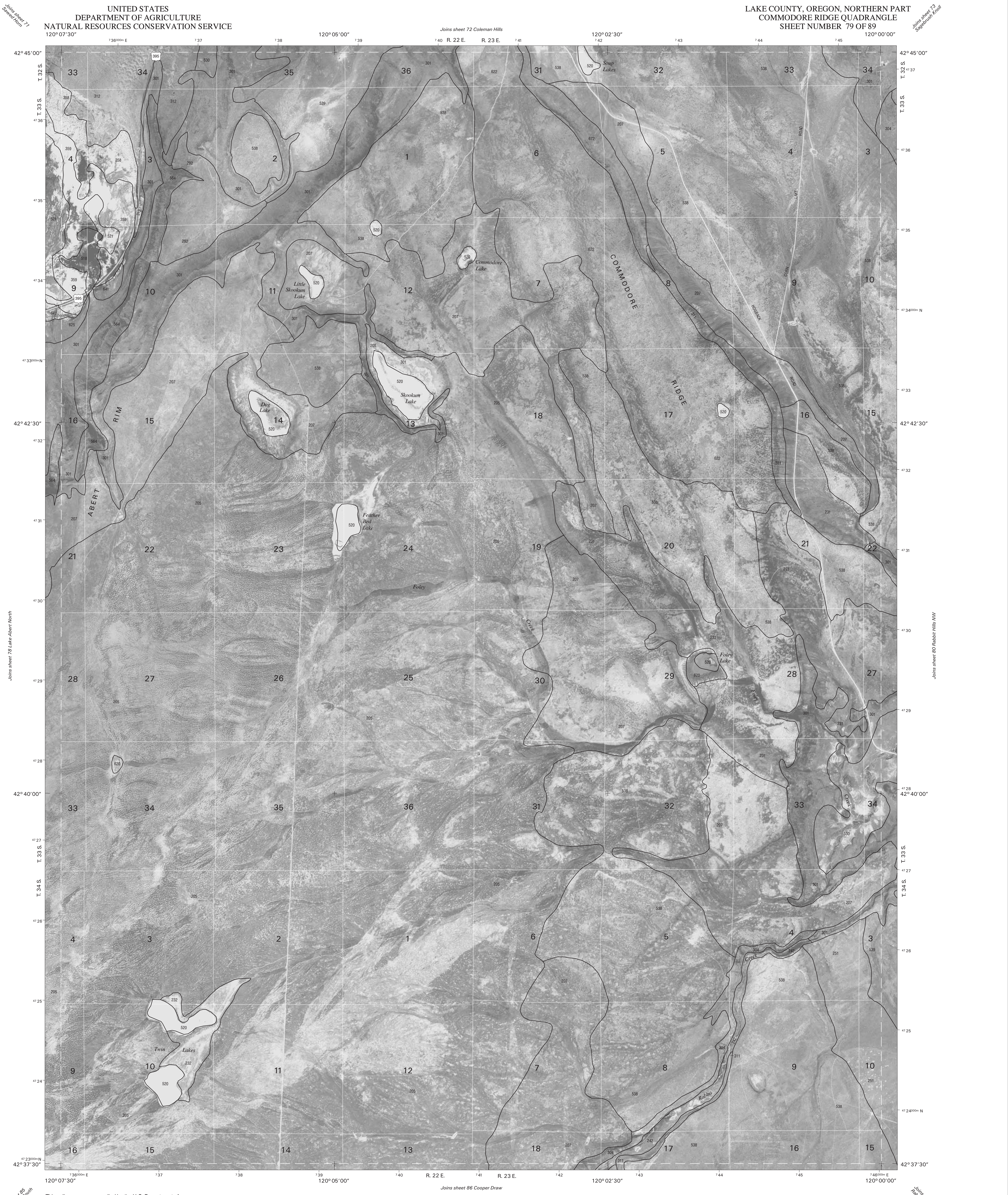
LAKE ABERT NORTH, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 78 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

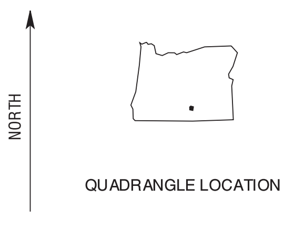
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
COMMODORE RIDGE QUADRANGLE
SHEET NUMBER 79 OF 89



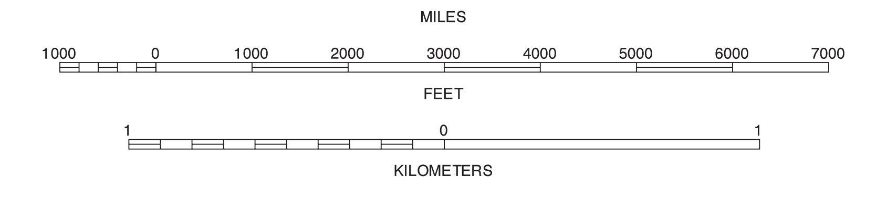
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



71	72	73
78		80
85	86	87

71	SAWED HORN
72	COLEMAN HILLS
73	SAGEBRUSH KNOLL
78	LAKE ABERT NORTH
80	RABBIT HILLS NW
85	LAKE ABERT SOUTH
86	COOPER DRAW
87	RABBIT HILLS SW

INDEX TO ADJOINING 7.5 MAPS

Joins sheet 85 Lake Abert South

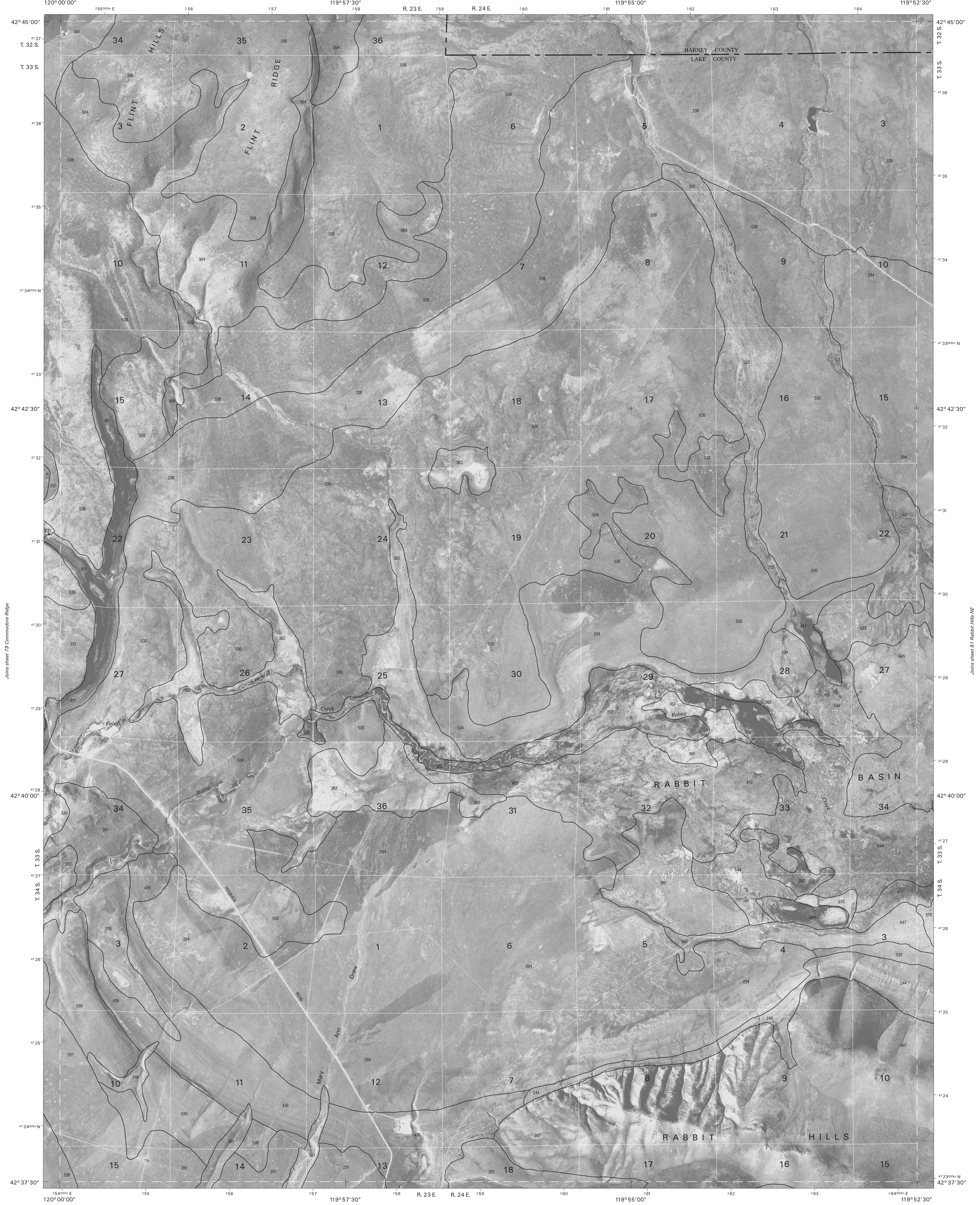
Joins sheet 87 Rabbit Hills SW

COMMODORE RIDGE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 79 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

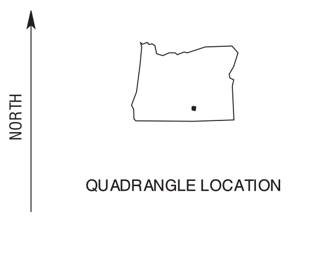
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
RABBIT HILLS NW QUADRANGLE
SHEET NUMBER 80 OF 89

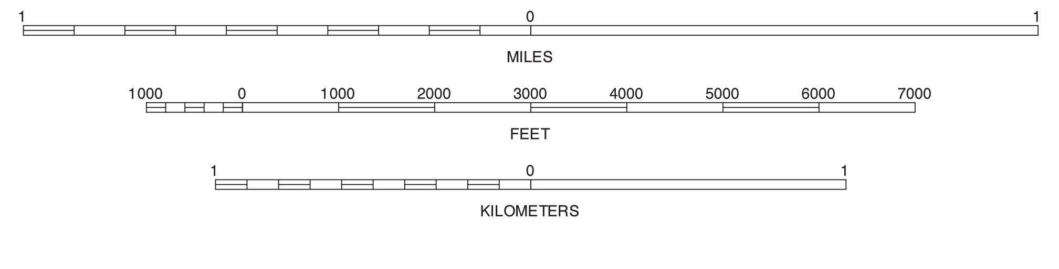


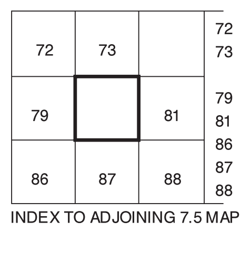
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION





72	COLEMAN HILLS
73	SAGEBRUSH KNOLL
79	COMMODORE RIDGE
81	RABBIT HILLS NE
86	COOPER DRAW
87	RABBIT HILLS SW
88	FLAGSTAFF LAKE

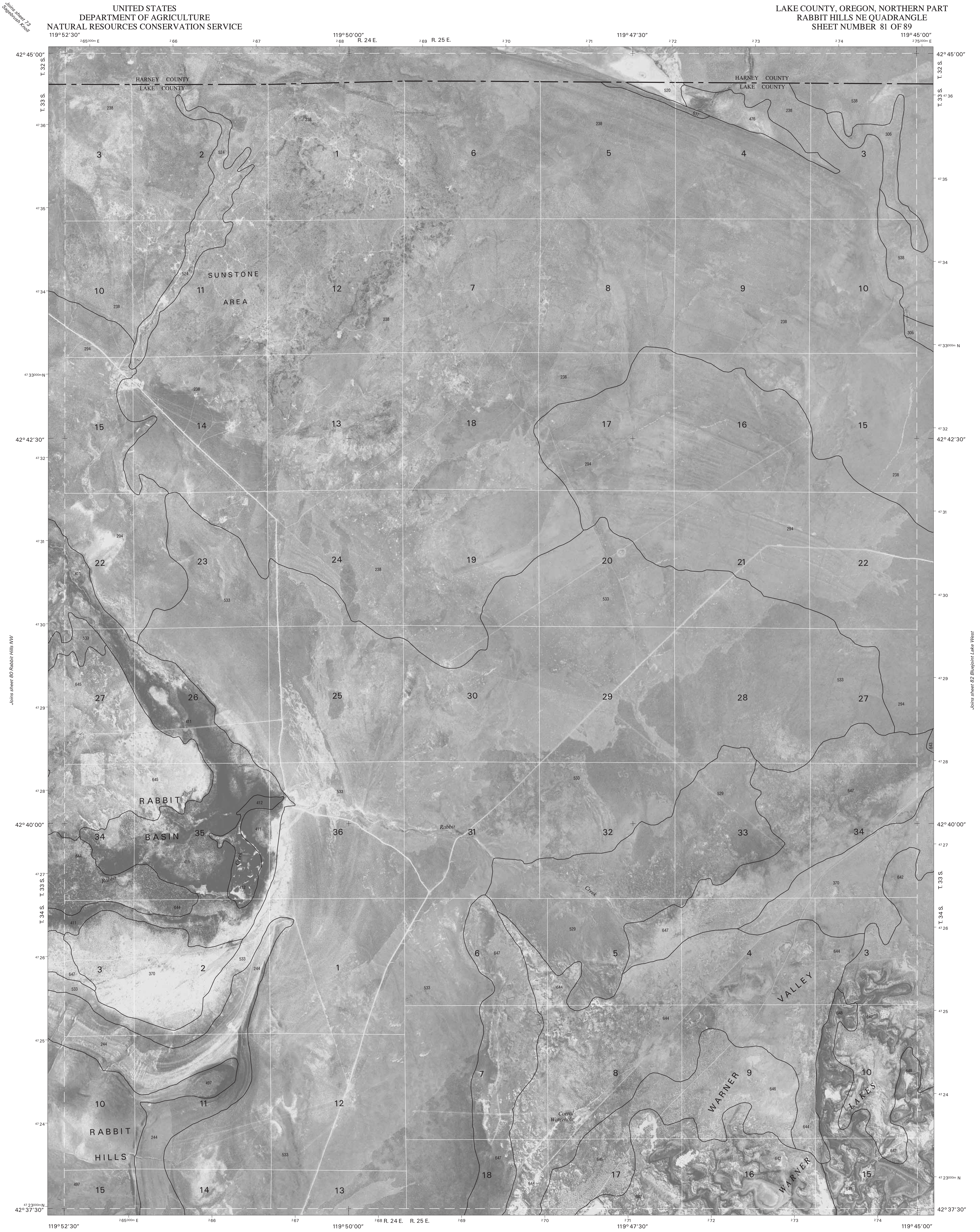
INDEX TO ADJOINING 7.5 MAPS

RABBIT HILLS NW, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 80 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

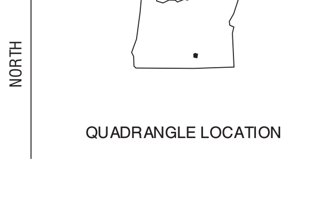
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
RABBIT HILLS NE QUADRANGLE
SHEET NUMBER 81 OF 89

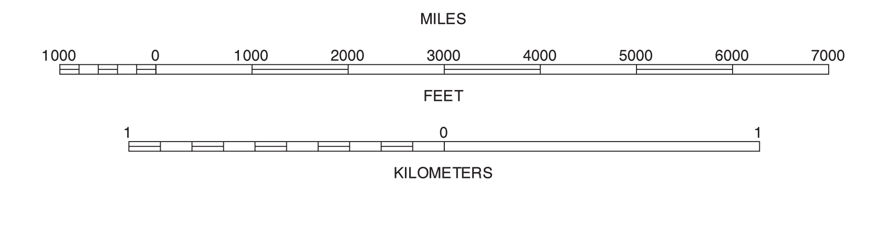


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



73 SAGEBRUSH KNOLL
80 RABBIT HILLS NW
82 BLUEJOINT LAKE WEST
87 RABBIT HILLS SW
88 FLAGSTAFF LAKE
89 CAMPBELL LAKE

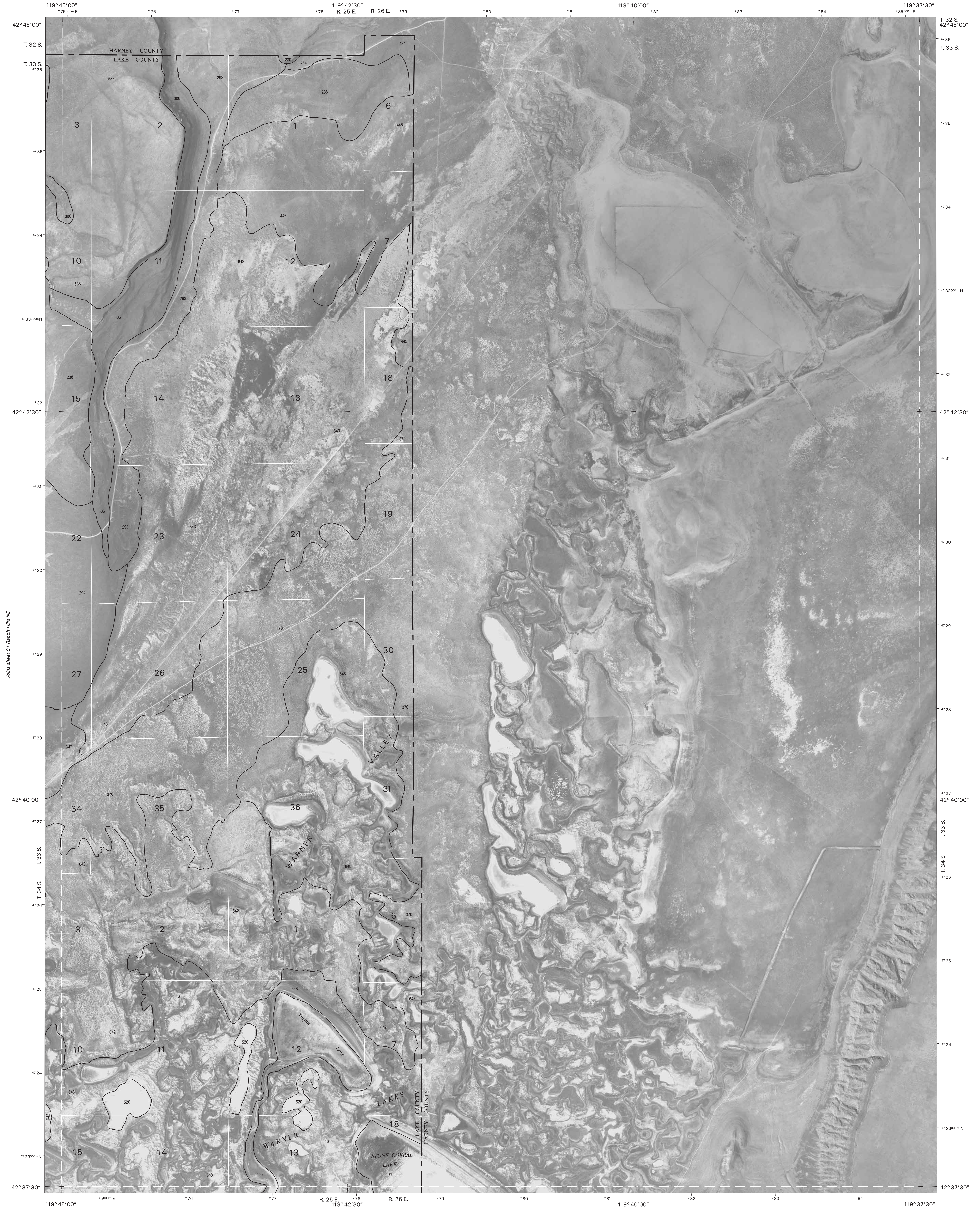
INDEX TO ADJOINING 7.5 MAPS

RABBIT HILLS NE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 81 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

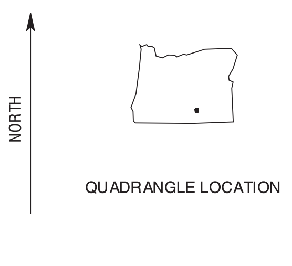
LAKE COUNTY, OREGON, NORTHERN PART
BLUEJOINT LAKE WEST QUADRANGLE
SHEET NUMBER 82 OF 89

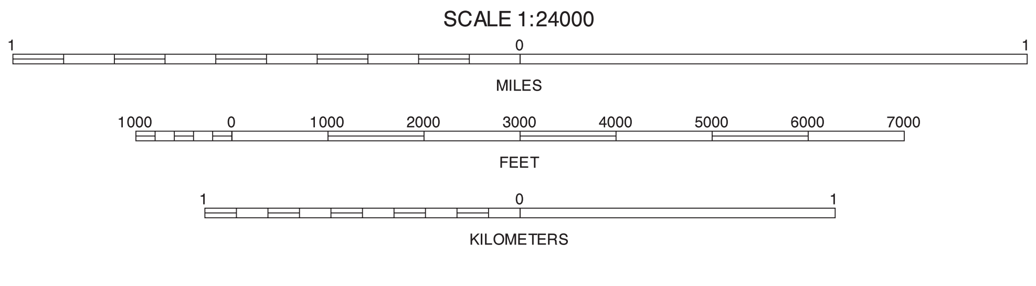


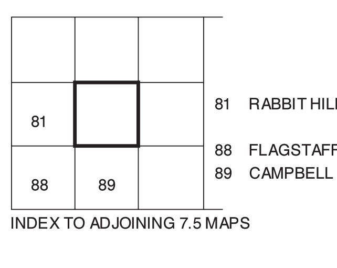
Joins sheet 88 Flagstaff Lake

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.







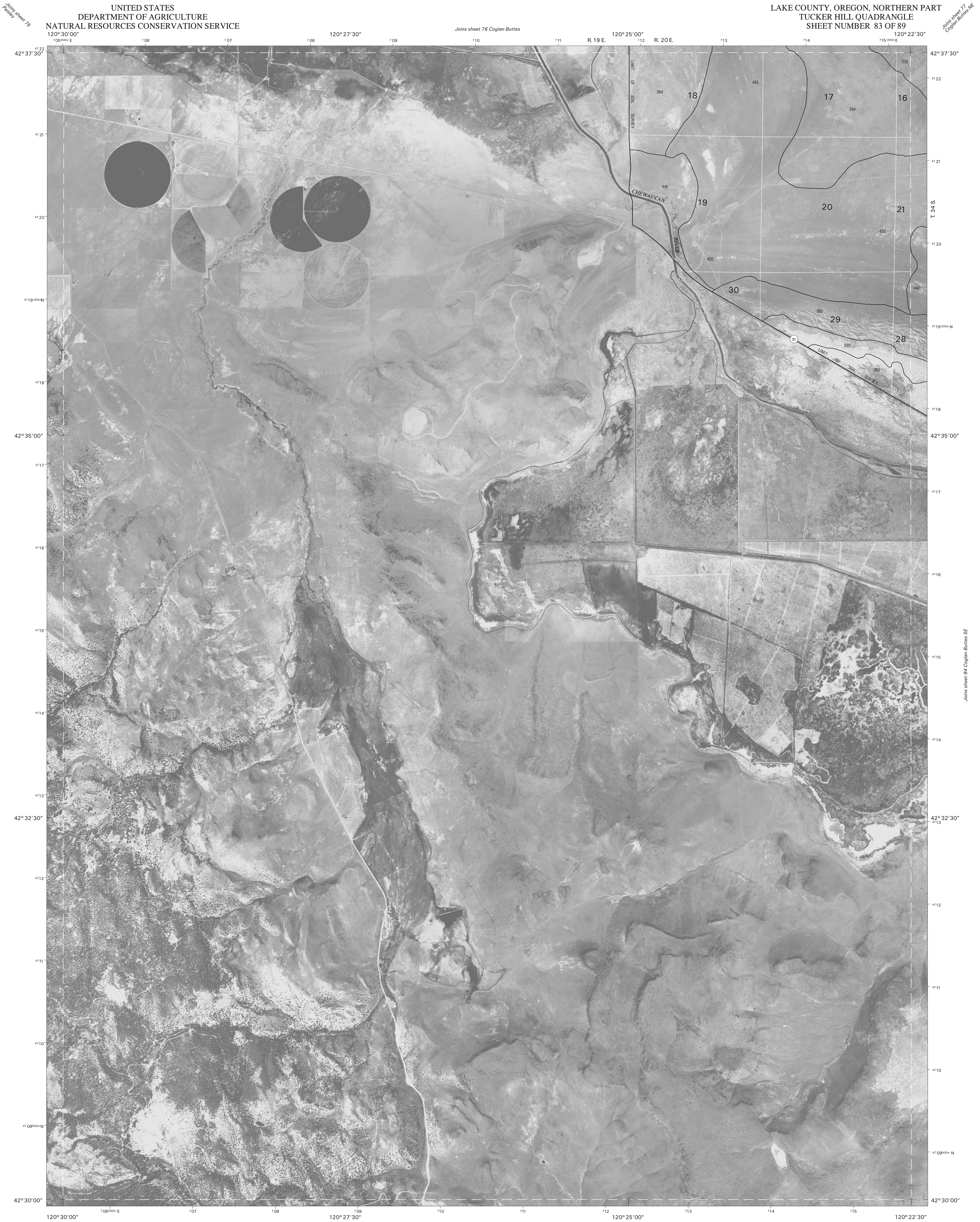
BLUEJOINT LAKE WEST, OREGON

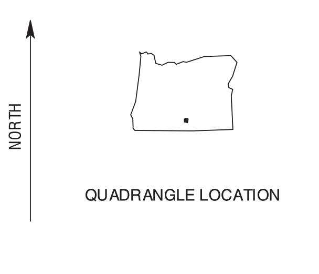
7.5 MINUTE SERIES
SHEET NUMBER 82 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

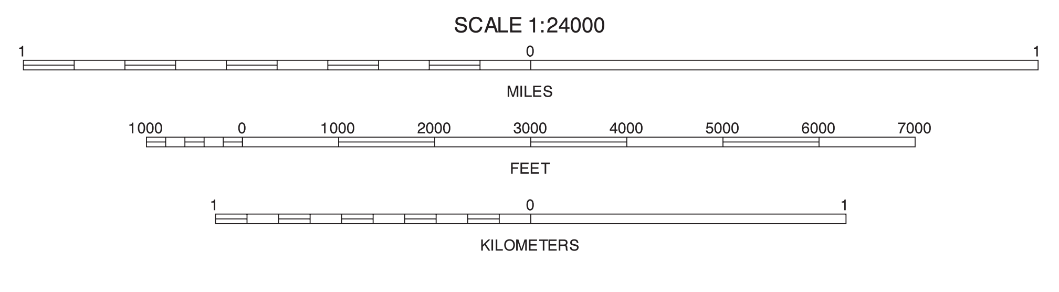
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

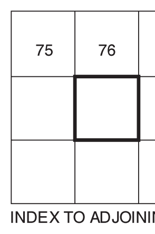
LAKE COUNTY, OREGON, NORTHERN PART
TUCKER HILL QUADRANGLE
SHEET NUMBER 83 OF 89





QUADRANGLE LOCATION





75 PAISLEY
76 COGLAN BUTTES
77 COGLAN BUTTES NE
84 COGLAN BUTTES SE

INDEX TO ADJOINING 7.5 MAPS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

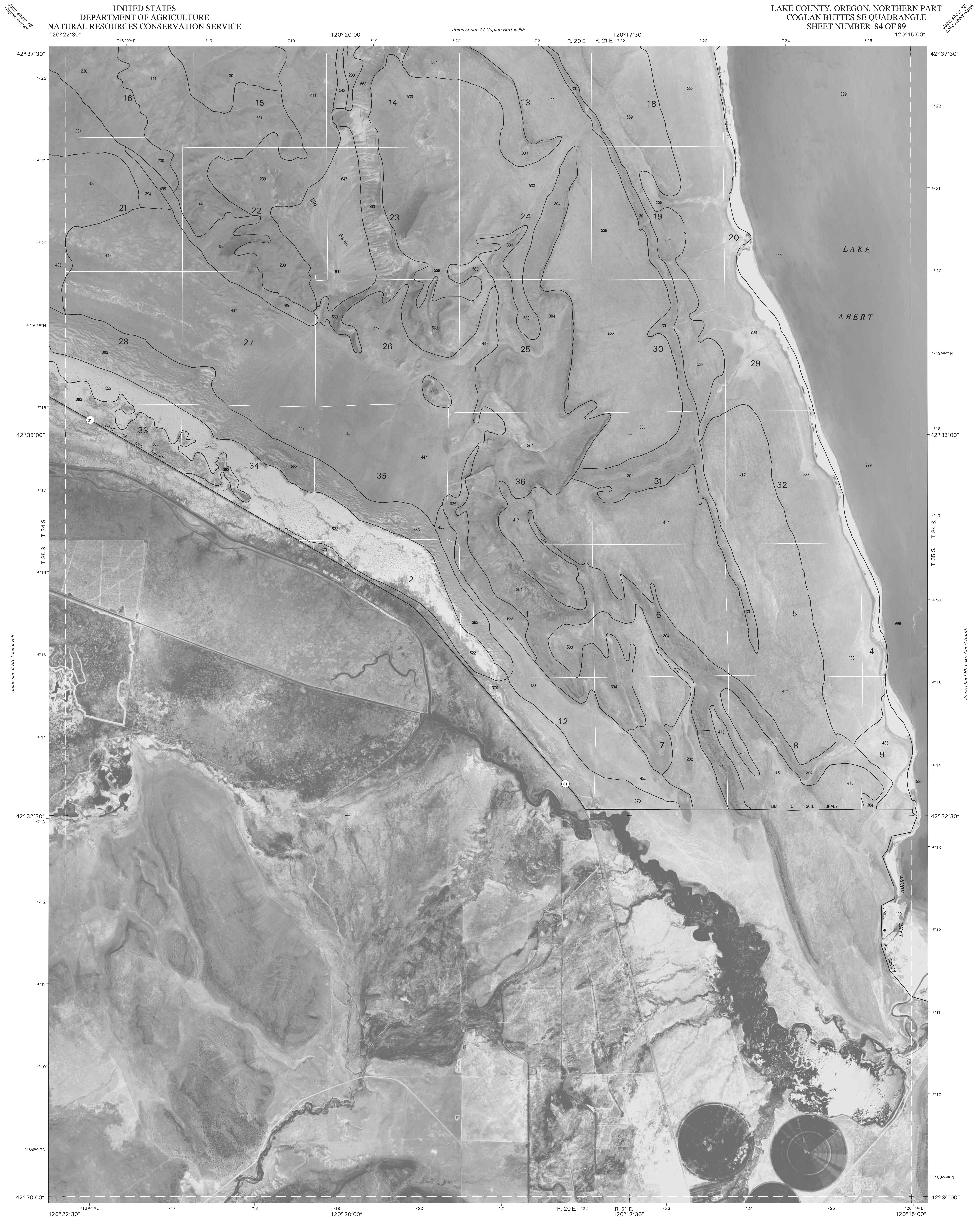
TUCKER HILL, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 83 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

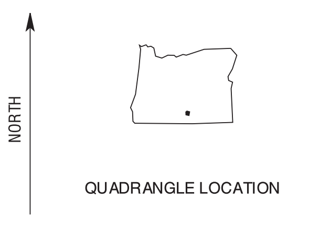
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
COGLAN BUTTES SE QUADRANGLE
SHEET NUMBER 84 OF 89



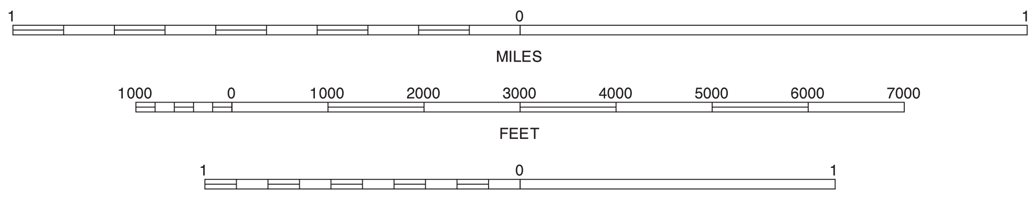
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

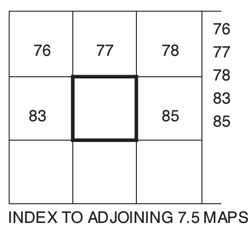
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





76	COGLAN BUTTES
77	COGLAN BUTTES NE
78	LAKE ABERT NORTH
83	TUCKER HILL
85	LAKE ABERT SOUTH

INDEX TO ADJOINING 7.5 MAPS

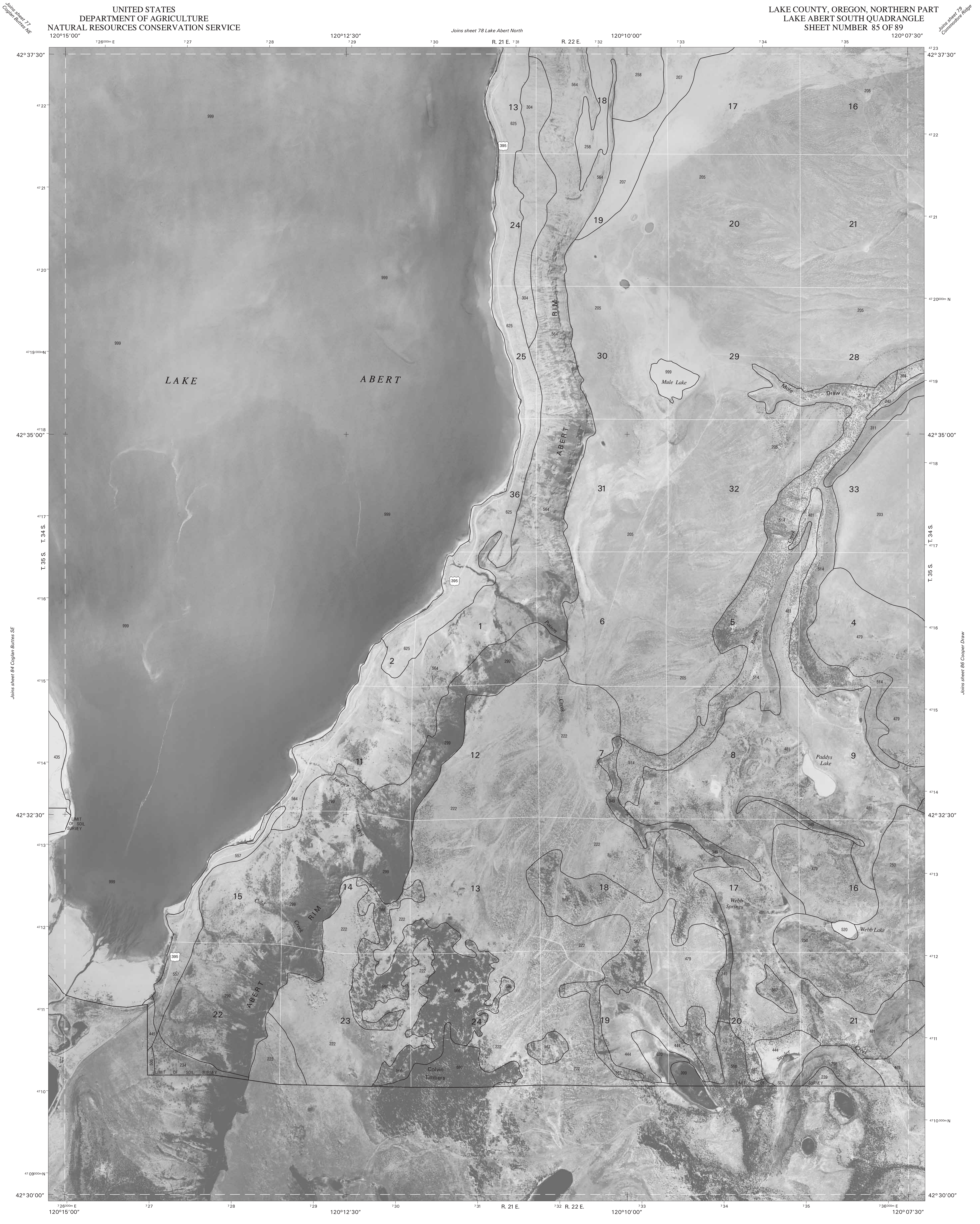
COGLAN BUTTES SE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 84 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

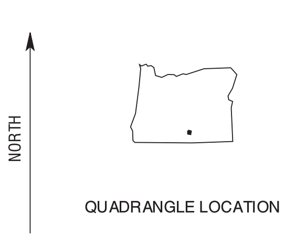
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
LAKE ABERT SOUTH QUADRANGLE
SHEET NUMBER 85 OF 89



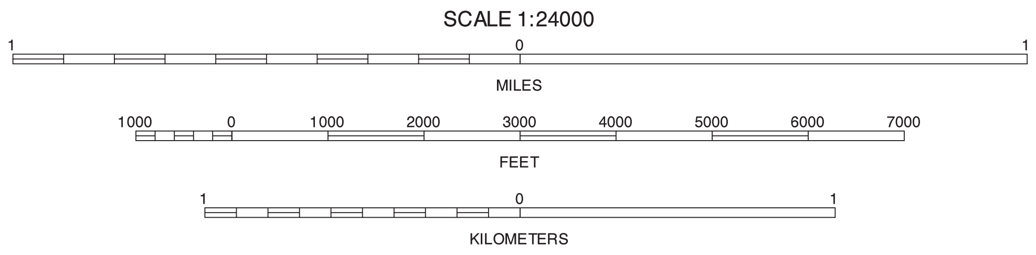
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

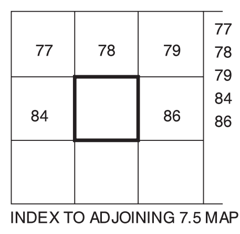
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





77 COGLAN BUTTES NE
78 LAKE ABERT NORTH
79 COMMODORE RIDGE
84 COGLAN BUTTES SE
86 COOPER DRAW

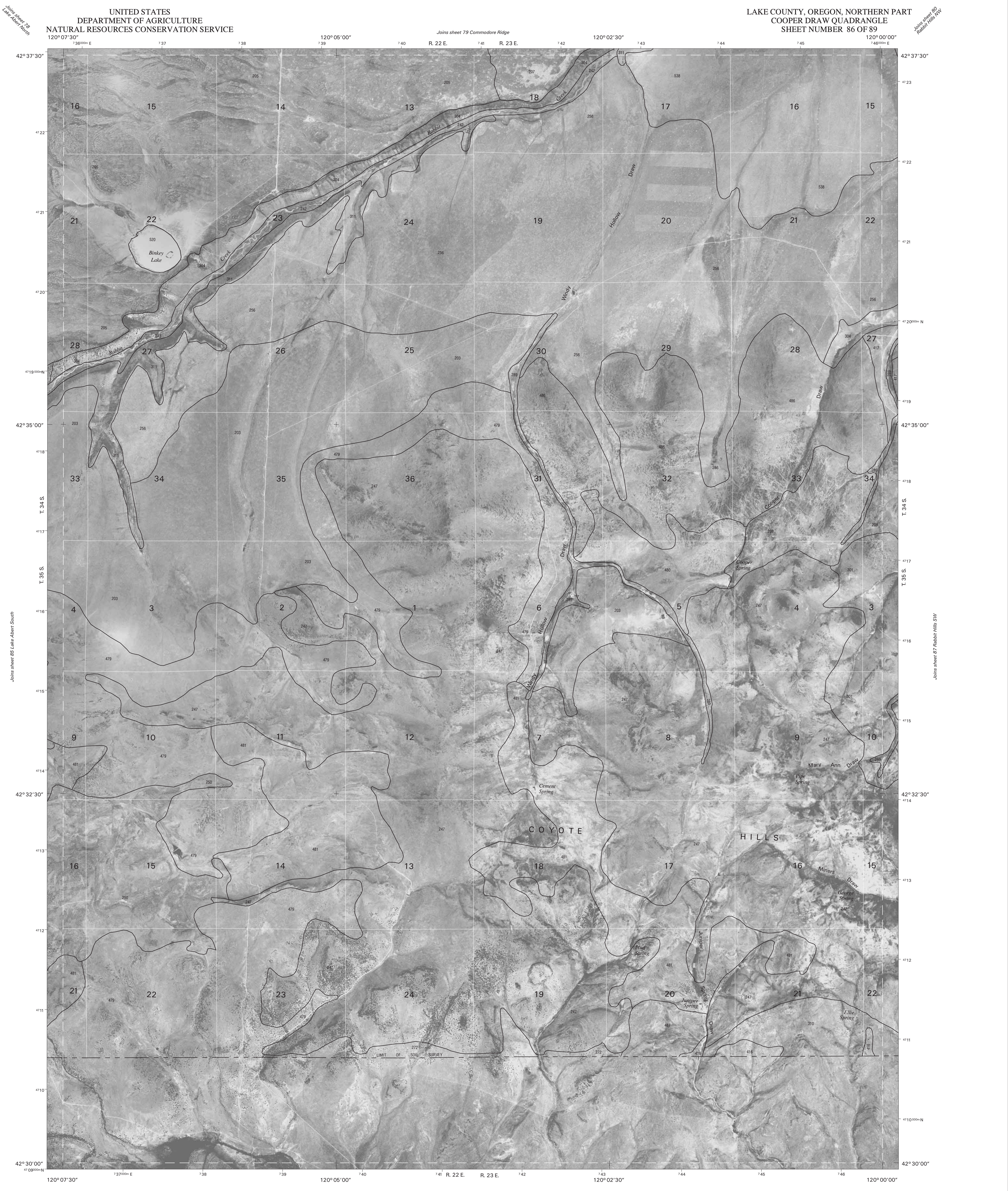
INDEX TO ADJOINING 7.5 MAPS

LAKE ABERT SOUTH, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 85 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

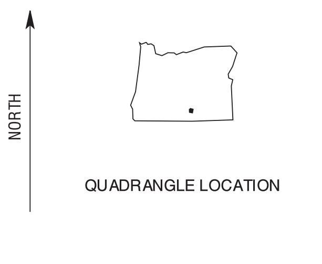
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
COOPER DRAW QUADRANGLE
SHEET NUMBER 86 OF 89



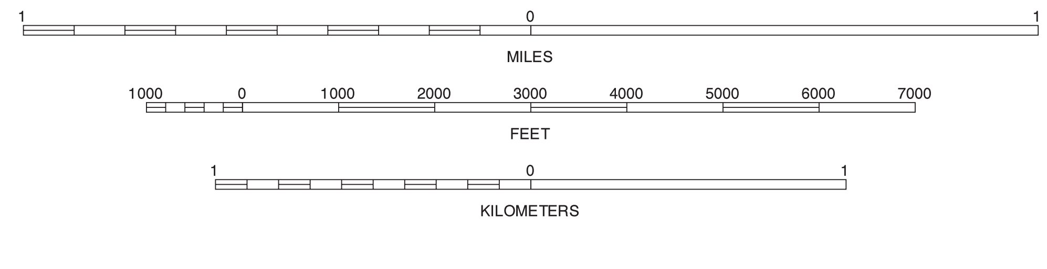
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

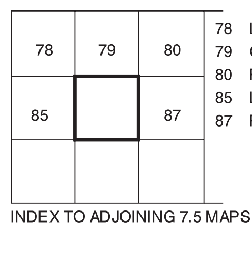
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





78 LAKE ABERT NORTH
79 COMMODORE RIDGE
80 RABBIT HILLS NW
85 LAKE ABERT SOUTH
87 RABBIT HILLS SW

INDEX TO ADJOINING 7.5 MAPS

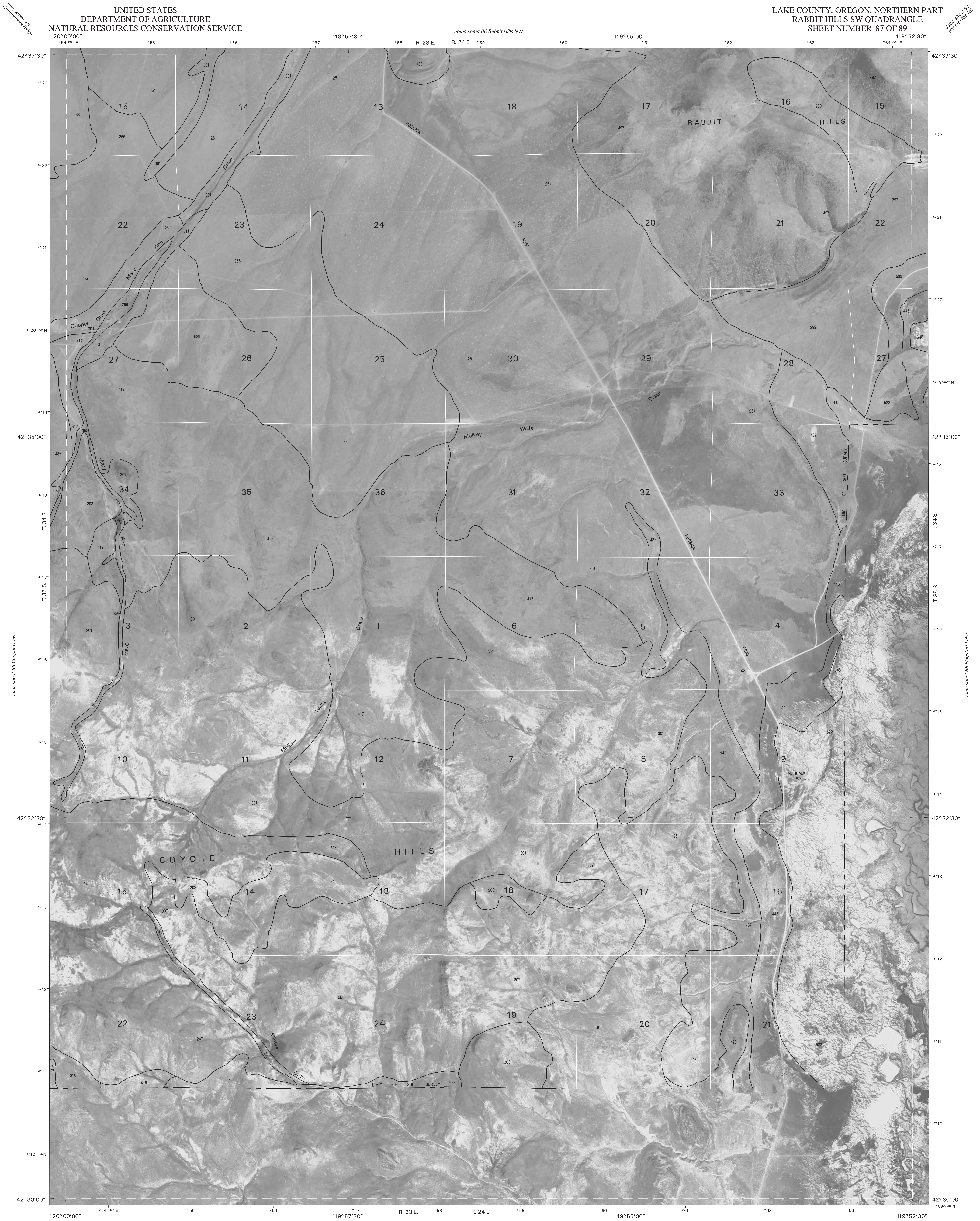
COOPER DRAW, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 86 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

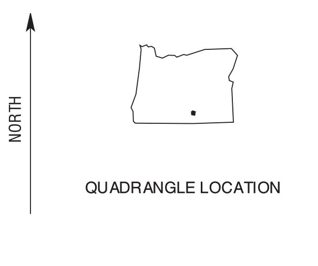
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
RABBIT HILLS SW QUADRANGLE
SHEET NUMBER 87 OF 89



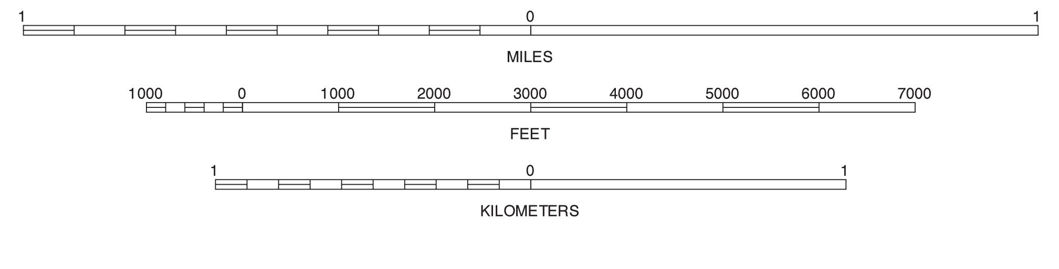
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

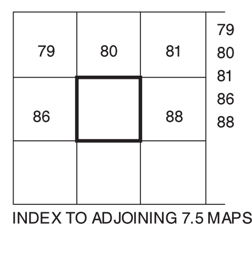
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





79 COMMODORE RIDGE
80 RABBIT HILLS NW
81 RABBIT HILLS NE
86 COOPER DRAW
88 FLAGSTAFF LAKE

INDEX TO ADJOINING 7.5 MAPS

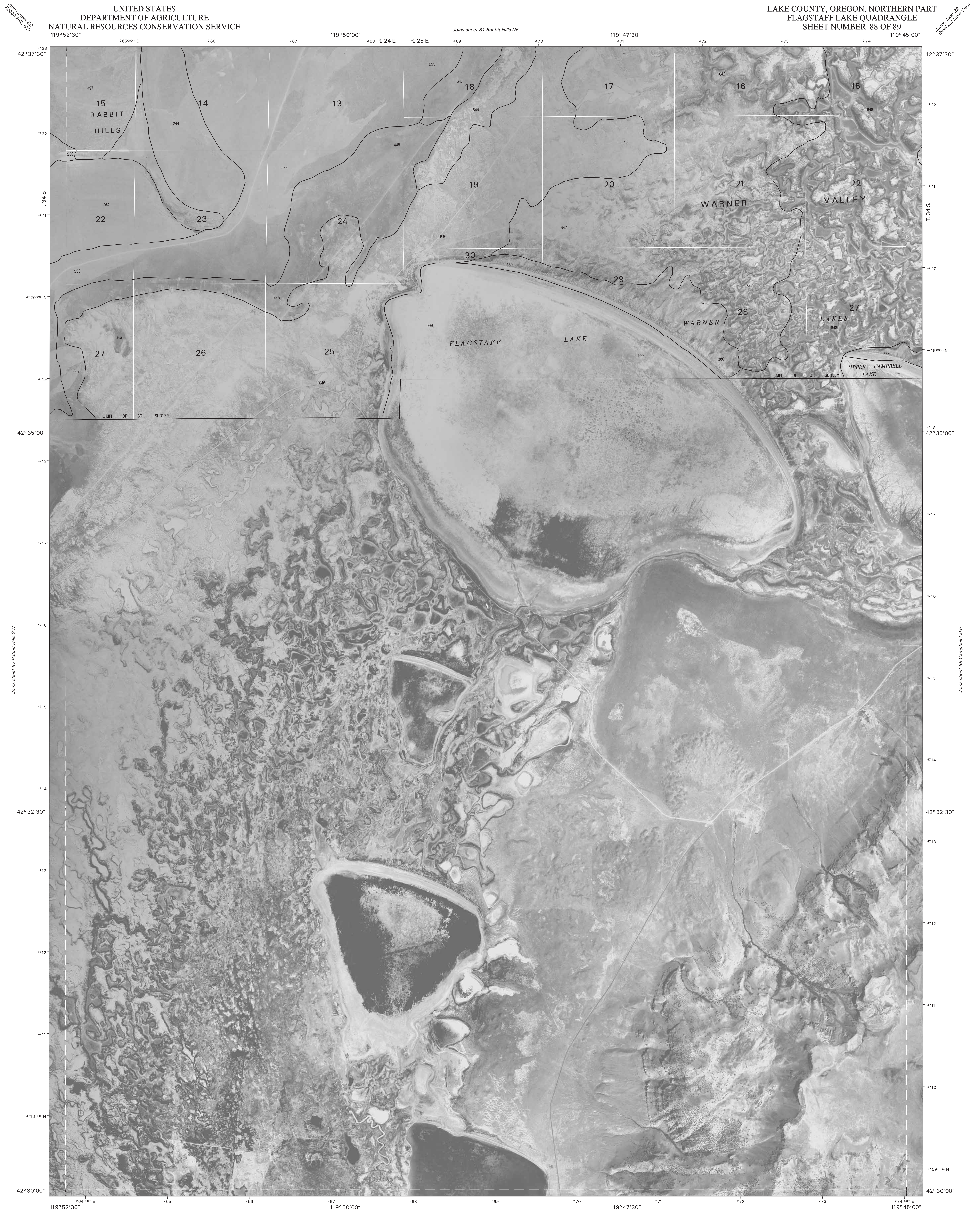
RABBIT HILLS SW, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 87 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

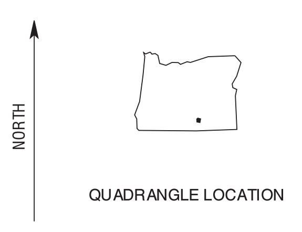
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
FLAGSTAFF LAKE QUADRANGLE
SHEET NUMBER 88 OF 89



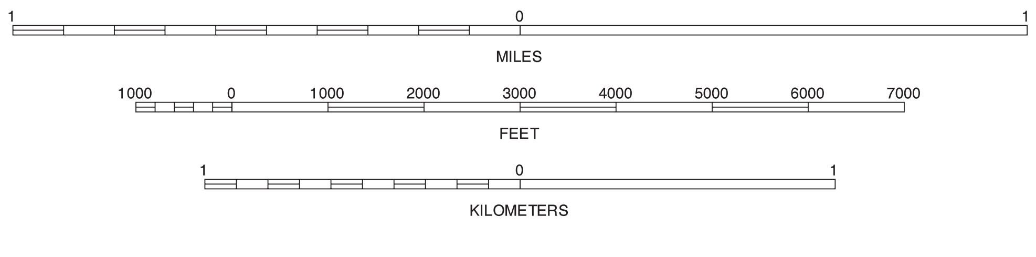
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

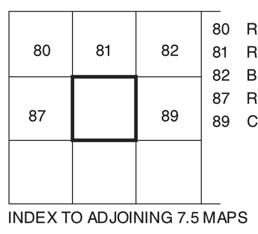
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





80 RABBIT HILLS NW
81 RABBIT HILLS NE
82 BLUEJOINT LAKE WEST
87 RABBIT HILLS SW
89 CAMPBELL LAKE

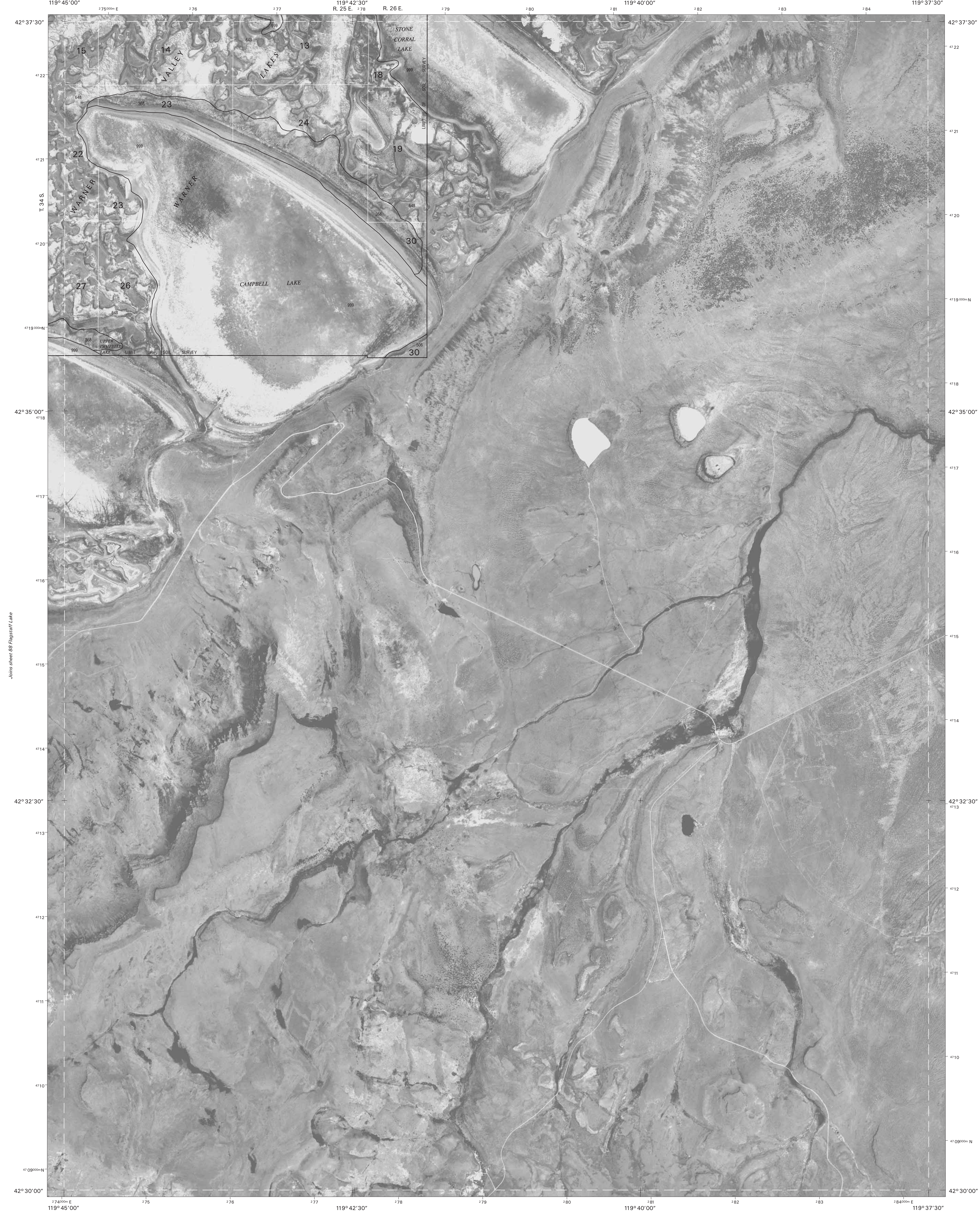
INDEX TO ADJOINING 7.5 MAPS

FLAGSTAFF LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 88 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

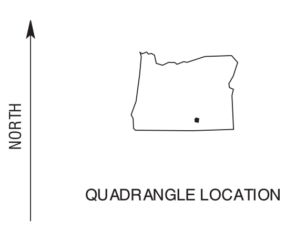
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LAKE COUNTY, OREGON, NORTHERN PART
CAMPBELL LAKE QUADRANGLE
SHEET NUMBER 89 OF 89



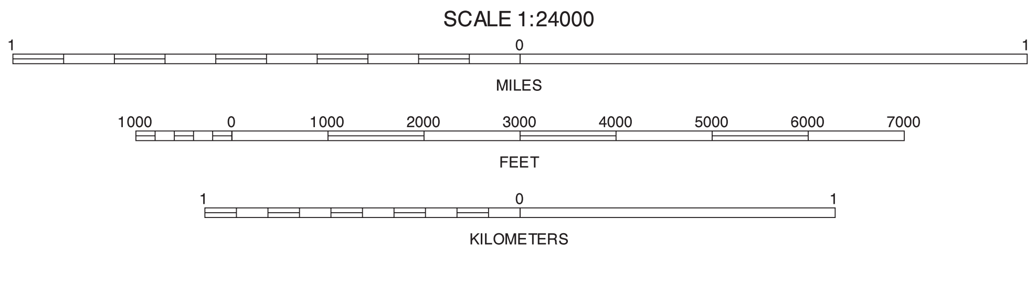
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared for the National Agriculture Imagery Program (NAIP), from 2005 aerial photography. Administrative boundaries were acquired from the State of Oregon. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

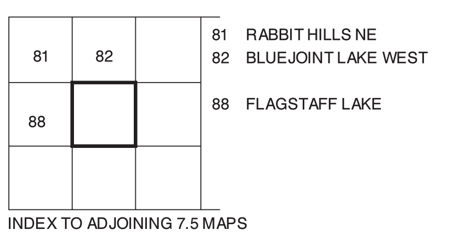
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





INDEX TO ADJOINING 7.5 MAPS

CAMPBELL LAKE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 89 OF 89

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.